CURTIS'S
BOTANICAL MAGAZINE,

COMPRISING THE

Plants of the Royal Gardens of Kew,

AND

OF OTHER BOTANICAL ESTABLISHMENTS IN GREAT BRITAIN;

WITH SUITABLE DESCRIPTIONS;

BY

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AND

OBSERVATIONS ON THE CULTURE OF EACH SPECIES;

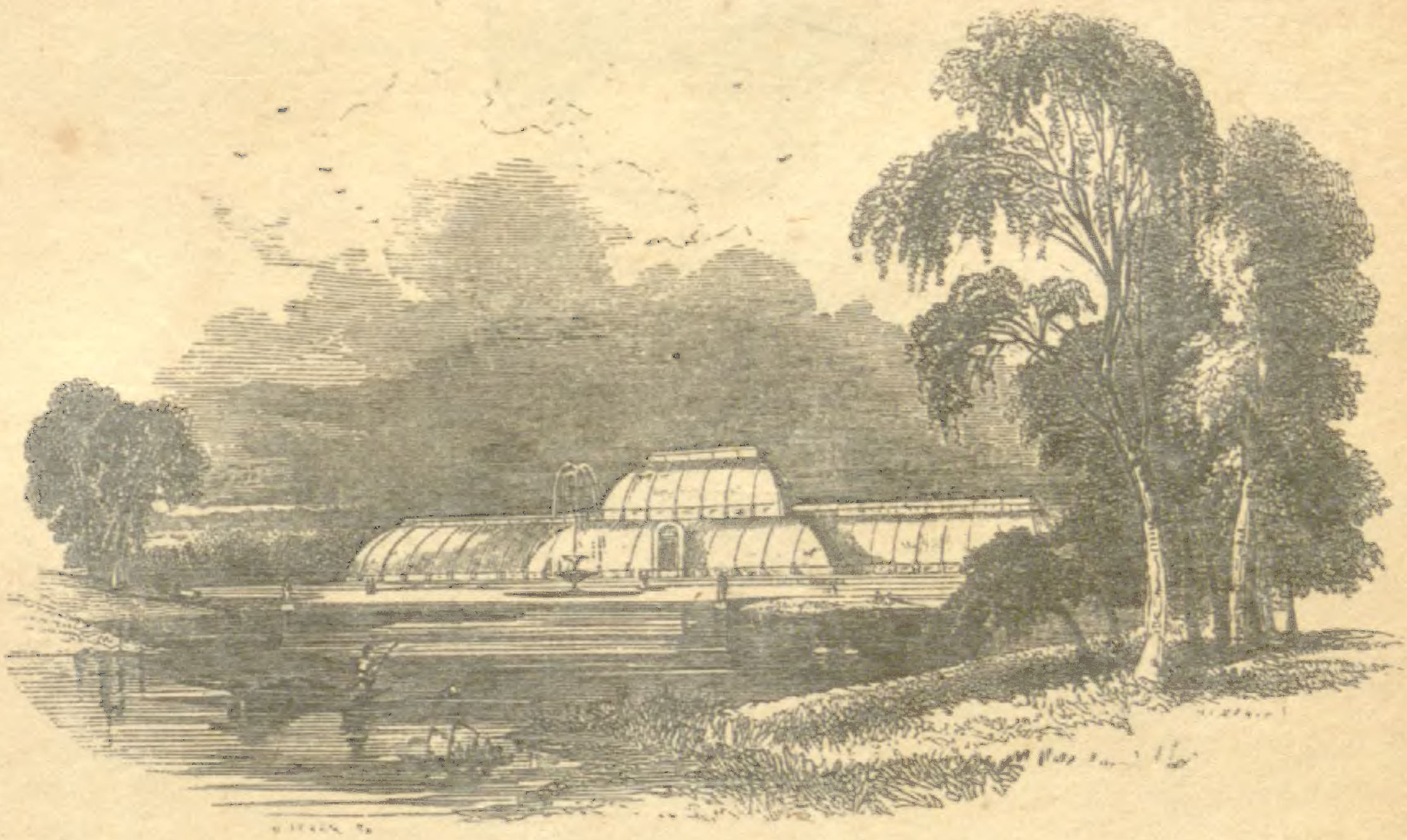
By Mr. JOHN SMITH, A.L.S.,

Curator of the Royal Gardens.

VOL. VII.

OF THE THIRD SERIES;

(Or Vol. LXXVII. of the Whole Work.)



"There breathes, for those who understand,
A voice from every flower and tree;
And in the work of Nature's hand,
Lies Nature's best philosophy;
For 'things invisible' are known,
By what the visible have shown."

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TO

DR. ASA GRAY,

PROFESSOR OF BOTANY

IN THE

UNIVERSITY OF NEW CAMBRIDGE, MASSACHUSETTS,

WHOSE RECENT SOJOURN AT KEW

HAS BUT TENDED TO INCREASE THE MUTUAL REGARD AND ESTEEM

INDUCED BY A FORMER VISIT AND BY LONG CORRESPONDENCE,

The Present Volume

IS DEDICATED,

BY HIS FAITHFUL AND AFFECTIONATE FRIEND,

THE AUTHOR.

Royal Gardens, Kew,
Dec. 1st, 1851.

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Fitch, del et lith.

Reeve & Nichols, imp.

Tab. 4554.

DIDYMOCARPUS CRINITA.

Hairy Didymocarpus.

Nat. Ord. Cyrtandraceæ.—Didynamia Angiospermia.

Gen. Char. Calyx 5-fidus vel partitus. *Corolla* infundibuliformis, limbo 5-lobo subirregulari rarius bilabiato. *Stamina* 4, quorum 2 (rarius 4) antherifera. *Antheræ* reniformes. *Ovarium* elongatum. *Stylus* brevis. *Stigma* orbiculatum, indivisum. *Capsula* siliquæformis, bivalvis, valvis introflexis falso-4-locularibus. *Semina* nuda, lævia, pendula.—Suffrutices *vel* herbæ *Indicæ*. Folia *radicalia aut caulina, alterna aut sæpius opposita, inæqualia*. Pedunculi *axillares, ramosi, aut dichotomo-cymosi*. Flores *violacei aut albi. De Cand.*

Didymocarpus *crinita*; suffruticosa erecta simplex tota pilosa, caule brevi villosissimo, foliis sessilibus cuneato-lanceolatis arguto-serratis velutinis subtus purpureo-rubris, pedicellis 3–5 axillaribus folio brevioribus, calycis 5-partiti laciniis lato-subulatis, staminibus 2 abortivis.

Didymocarpus crinita. *Jack, Mal. Misc. in Hook. Bot. Misc. v.* 2. *p.* 60; *et in Linn. Trans. v.* 14. *p.* 33. *t.* 3. *f.* 2. *a–i. De Cand. Prodr. v.* 9. *p.* 265. *Spreng. Syst. Vegel. v.* 2. *p.* 837.

Henckelia crinita. *Spreng. Cur. Post. p.* 13.

A lovely plant, its beauty rather depending on the leaves (which have a rich velvety hue, as well as a richness of *colour*, especially beneath) than from anything striking in the flowers. The latter are pure white with us (Jack says, in their native country suffused with blush), and they contrast well with the dark foliage. Flowers in August. Our plant was received from Baron Hugel of Vienna, but without any name. We possess, in our herbarium, fine native specimens, gathered by Mr. Thomas Lobb at Singapore, given to us by Mr. Veitch (no. 311 of Lobb's collection), and we find, too, that this distinguished cultivator exhibited flowering plants at the Horticultural Society's rooms in June 1847. Mr. Jack detected it at Pulo-Penang.

Descr. *Stem* erect, scarcely a span high, densely shaggy with purplish hairs. *Leaves* opposite, broad-lanceolate, acute, finely dentato-serrate, all over hairy, above dark coppery green with a velvety lustre, beneath rich purple-red, penninerved,

nerves prominent beneath. *Peduncles* shorter than the leaves, 2–5 from an axil (united to the petiole or to the midrib, *Jack*), erect, single-flowered, hairy, bibracteate. *Calyx* of four deep, red, broadish, subulate segments. *Corolla* infundibuliform, ventricose below the broad-spreading five-lobed white lip, yellow, with the tube two inches long. *Stamens* included, arising from near the top of the tube, two of them sterile. *Anthers* connate, four-angled. *Ovary* linear. *W. J. H.*

Cult. This singular-looking plant, a native of Pulo-Penang, should be cultivated in a warm stove, in a temperature such as is suited to tropical *Orchidaceæ*, *Gesneriaceæ*, and other sub-epiphytal plants, that require a warm and moist atmosphere during their season of growth. Like most of its allies, it thrives in a mixture of light loam and leaf-mould or turfy peat, and must not be over-watered during the winter. It appears to be of dwarf growth, and produces short lateral shoots from amongst the leaves, which strike root readily when treated as cuttings. *J. S.*

Fig. 1. Corolla laid open. 2. Anthers. 3. Calyx and pistil. 4. Base of the ovary with its annular gland :—*magnified*.

Fitch, del et lith.

Reeve & Nichols, imp.

Tab. 4555.

CAMPANULA COLORATA.

Deep-coloured Bell-flower.

Nat. Ord. Campanulaceæ.—Pentandria Monogynia.

Gen. Char. Calyx 4-fidus. *Corolla* apice 5-loba vel 5-fida, sæpius campanulata. *Stamina* 5, libera, filamentis basi latis et membranaceis. *Stylus* in præfloratione pilis collectoribus (excepta ima basi) tectus. *Stigmata* 3 vel 5, filiformia. *Capsula* 3–5-locularis, valvis 3–5 lateraliter dehiscens. *Semina* ovata, complanata vel ovoidea.—Herbæ *sæpius perennes, nunc humiles et humifusæ, nunc* 2–3-*pedales, erectæ, multifloræ*; foliis *radicalibus sæpius forma diversis*; floribus *terminalibus vel axillaribus*:—*omnes in* hemisphærio boreali. *De Cand.*

Campanula *colorata*; caule ramoso pubescente, foliis sparsis ovato-lanceolatis acutis repando-dentatis, pedunculis elongatis terminalibus et axillaribus, calycis tubo piloso obconico, lobis amplis subfoliaceis triangulari-acuminatis obsolete repando-dentatis, corolla tubuloso-campanulata extus pilosa, capsula turbinata subnutante.

Campanula colorata. *Wall. in Roxb. Fl. Ind. ed. Wall. v.*2. *p.*101. *Cat. n.*1287. *De Cand. Prodr. v.* 7. *p.* 473.

β. *Moorcroftiana*; foliis minus dentatis. *De Cand. Prodr.*

Campanula Moorcroftiana; *Wall. Cat. n.* 1288.

Raised from seeds sent by Dr. Hooker, to the Royal Gardens of Kew, in 1849, from Sikkim-Himalaya, elevation 10,000 feet above the level of the sea. It seems quite hardy, and flowered through the autumn in the open border, even as late as November, when our drawing was made. It would appear to have a very extensive range along the whole Himalaya chain, and on both sides. Dr. Wallich's original specimens were gathered at "Ludak" in 1821, as stated in his valuable edition of 'Flora Indica;' afterwards, in his 'Catalogue,' the further stations of Nepal, Deyra Dhoon, and Kamoon are given. Professor De Candolle refers to it, and probably justly, Dr. Wallich's *C. Moorcroftiana* (as suggested by Dr. Wallich himself) from Ladak in Thibet, and our herbarium contains specimens) not only from the above localities (presented by the Hon. the E. I. Company) but also from Simla and from Affghanistan.

January 1st, 1851.

It is variable in its growth, sometimes erect, sometimes trailing. Its copious deep-coloured bell-flowers would render it a great ornament for rock-work.

Descr. Perennial? *Stems* from a span to two feet long, slender, much branched, angular, villous. *Leaves* alternate, remote, broadly or ovato-lanceolate, acuminate, distantly toothed or sinuate, sessile or attenuated into a short *footstalk*, pubescent with scattered hairs. *Peduncles* slender, more or less elongated (much so in age), terminal and axillary, single-flowered. *Calyx* villous. *Tube* turbinate, five-angled: *limb* large, of five spreading almost foliaceous *lobes*, triangular-acuminate, sinuato-dentate. *Corolla* campanulate, deep purple, bright, *tube* rather elongated, *lobes* rather large, spreading. *Filaments* of the *stamens* free, very broad at the base. *Style* much longer than the stamens. *Stigmas* three, recurved. *W. J. H.*

Cult. This was raised from seed in the spring of the past year, and produced its flowers in the latter part of summer and autumn. From its appearance at the present time, we have every reason to think it will prove perennial. Few plants from the elevated regions within or near the tropics (although in their native localities enduring a great degree of cold) are able to resist the severity of some of our winters without some protection. It is therefore desirable to keep plants of this *Campanula* in small pots, under a frame, planting them out in spring in the open border. *J. S.*

Fig. 1. Calyx with stamens and pistil:—*magnified*.

Fitch del et lith

Reeve & Nichols, imp.

Tab. 4556.

HYDROMESTUS maculatus.

Mexican Hydromestus.

Nat. Ord. Acanthaceæ.—Didynamia Angiospermia.

Gen. Char. Calyx bibracteolatus, quinquepartitus, laciniis superioribus æqualibus acutis, quinta postica obtusa. *Corolla* hypogyna, infundibuliformis, bilabiata, *tubo* longo; *labio* superiore bifido, *labis* obtusis revolutis inferioris trifidi laciniis æqualibus. *Spicæ* bracteis arcte appressis, cucullatis, aqua limpida impletis. *Stamina* quatuor, æqualia, corollæ tubo inserta, barbata; *antheræ* uniloculares, apice et basi lanuginoso-barbatæ. *Ovarium* biloculare, *loculis* biovulatis. *Stylus* simplex; *stigma* bilabiatum, *labiis* inæqualibus. *Capsula* sessilis, tetragona, bilocularis, *loculis* dispermis, dissepimento incompleto, loculicide bivalvis, *valvis* medio septiferis. *Semina* discoidea, rugosa, retinaculis uncinatis suffulta. *Scheidw.*

Hydromestus *maculatus.*

Hydromestus maculatus. *Scheidweiler in Garten-Zeitung*, 1842. *p.* 285. *Lindl. in Bot. Reg.* 1843. *Misc. n.* 46.

Received at Kew from Mr. Lowe of the Clapton Nursery. According to Dr. Lindley, it was introduced from Brussels to our gardens. Although published by Scheidweiler in 1842, according to the same author, yet the genus does not seem to be taken up, nor the plant noticed, by Dr. Nees von Esenbeck in De Candolle's 'Prodromus.' It is a native of Mexico, and is really a handsome plant, with very glossy leaves (not spotted with us), bright yellow flowers, and a singularly nitid imbricated spike of large bracteas (like the scales on some Pine-cone), from which the flowers spring.

Descr. An *undershrub*, according to Scheidweiler, with terete purplish *branches*, and opposite, large, petiolated, very glossy *leaves*, ovate or ovato-lanceolate, entire, penninerved (spotted, *Scheidweiler*). *Petiole* an inch to an inch and a half long, semiterete. *Spikes* solitary, terminal and axillary. *Bracteas* large, broad-ovate, carinated, bright green, imbricated like the scales of a cone, but in four rows. *Flowers* yellow. *Calyx* bibracteolate, five-partite, four of the *sepals* equal, the fifth

broader, obtuse. *Corolla* much exserted beyond the bracteas. *Tube* narrow, funnel-shaped, a little inflated, yet laterally compressed at the mouth; *limb* large, two-lipped; *lips* spreading: upper one two-lobed, the lower three-lobed, all the lobes emarginate. *Stamens* four, included. *Filaments* hairy. *Anthers* bearded at the summit. *Style* also included. *Stigma* unequally bifid. *W. J. H.*

Cult. A plant which requires to be grown in a warm and moist stove, and thrives in a mixture of light loam and leaf-mould. It appears to flower freely, the drawing having been made from a plant not more than a foot high. Being, like other soft-wooded *Acanthaceæ*, apt to become naked and unsightly when old, it is desirable to keep a succession of young plants, which are readily obtained from cuttings. *J. S.*

Fig. 1. Stamens and style. 2. Anterior view of a calyx, with pistil. 3 Posterior view of a calyx:—*magnified.*

Fitch, del et lith

Reeve & Nichols, imp.

Tab. 4557.

ASTER Sikkimensis.

Sikkim Aster, or Michaelmas Daisy.

Nat. Ord. Compositæ.—Syngenesia Superflua.

Gen. Char. Capitulum radiatum, *fl. radii* ligulatis fertilibus 1-serialibus, *disci* hermaphroditis 5-dentatis. *Receptaculum* planum, alveolatum, alveolorum marginibus plus minus dentatis. *Involucri* squamæ pluriseriales, laxæ vel imbricatæ, apice plus minus herbaceæ, imo interdum foliaceæ. *Achænium* compressum. *Pappus* pilosus, persistens, pluriserialis, setis scabridis subinæqualibus cæterum inter se similibus.—Herbæ *perennes, pleræque ex America boreali, rarius ex orbe veteri aut ex Amer. austr. ortæ, interdum suffruticosæ aut scaposæ.* Folia *alterna, simplicia, integra aut dentata.* Capitula *solitaria aut plurima, corymbosa seu paniculata.* Discus *flavus, demum interdum purpurascens.* Radius *albus cæruleus purpureusve. De Cand.*

Aster *Sikkimensis*; caule erecto glabro ramoso, foliis lanceolatis glabris longe acuminatis spinuloso-denticulatis venoso-reticulatis, radicalibus majoribus sublonge petiolatis, caulinis sessilibus, corymbis amplis polycephalis foliolosis, pedunculis pedicellisque pubescentibus, involucri foliolis linearibus acuminatis subsquarrosis, floribus purpureis, acheniis scabris.

Raised from seeds sent by Dr. Hooker to the Royal Gardens of Kew from the alpine regions of Sikkim. It flowers with us in October, and enlivens the garden at that late season with its copious bright purple flowers. We propose to treat it as a hardy plant. It seems to have a good claim to rank with the genus *Aster*, as now limited by De Candolle, of which very few certain species inhabit India, and those are chiefly confined to the temperate climates of the north. It is remarkable of this and of our *Aser Caubulicus* (Bot. Mag. Comp. 1847, p. 34), that the stems form almost perfect wood the first year, three or four feet high, in the early winter abounding in leaf-buds, but dying down with our winter to the root.

Descr. *Root* perennial. *Stem* erect, almost woody, and fragrant, three or four feet high, glabrous, tereti-angular, purplish-brown. *Leaves* glabrous, lanceolate, all of them much and narrowly acuminated, spinuloso-serrate, with several parallel, very oblique nerves and numerous lesser connecting ones: lower

leaves more than a span long, tapering into a flattened petiole: those of the stem but half the size, sessile and almost semiamplexicaul. *Corymbs* large, leafy (leaves small), with copious *capitula*, which are purple. *Peduncles* and *pedicels* downy. *Involucre* of many narrow-linear, imbricated, subscariose, purplish, sharp *scales*. *Receptacle* alveolate and toothed. *Florets* of the ray numerous, in one series. *Ovaries* and *fruit* hispid. *Pappus* of rather few bristles. *W. J. H.*

Cult. We raised this *Aster* from seed in 1849, and it flowered in the open ground during the latter part of the past summer. It is of a suffruticose habit, which it would evidently maintain if kept in the greenhouse or under some kind of protection in winter, but in the open ground it has every appearance of assuming the character of a hardy perennial. It is easily increased by cuttings of the stems, or by division of the roots. *J. S.*

Fig. 1. Receptacle and part of the involucre. 2. Floret of the ray. 3. Ditto of the disc:—*magnified*.

Fitch del et lith.

Reeve & Nichols, imp

Tab. 4558.

MYRTUS ORBICULATA.

Orbicular-leaved Myrtle.

Nat. Ord. Myrtaceæ.—Icosandria Polyandria.

Gen. Char. Calyx tubo campanulato, cum ovario connato, limbo quinquefido, supero vel semisupero, deciduo vel rarius persistente. *Corollæ petala* 5, calycis fauci inserta, ejusdem laciniis alterna, breviter unguiculata, orbiculata. *Stamina* 20–60, cum petalis inserta, iisdem breviora vel vix longiora; *filamenta* filiformia libera; *antheræ* biloculares, longitudinaliter dehiscentes. *Ovarium* inferum vel semisuperum, quadri-quinqueloculare, *loculis* multiovulatis. *Stylus* filiformis; *stigma* capitatum. *Capsula* infera vel semisupera, quadri-quinquelocularis, apice loculicide dehiscens. *Semina* plurima, minima, oblongo-compressa.—Frutices *vel* arbores, *in Nova Hollandia et Nova Zelandia crescentes*; foliis *alternis, exstipulatis, integerrimis*; floribus *pedicellatis, solitariis, sparsis, nudis v. scariose bracteolatis, albis. Endl.*

Myrtus (Jossinia) *orbiculata*; foliis subsessilibus elliptico-orbicularibus coriaceis rigidis glabris marginibus subreflexis, pedicellis brevibus unifloris axillaribus fasciculatis, calycis tubo bibracteolato, limbi dentibus brevissimis, petalis orbicularibus concavis extus punctatis, staminibus numerosissimis.

Myrtus orbiculata. *Spreng. Syst. Veget. v. 2. p. 480.*

Eugenia orbiculata. *Lam. Dict. v. 3. p. 202.*

Jossinia orbiculata. *De Cand. Prodr. v. 3. p. 337.*

A groupe of the *Myrtle* family, having very thick coriaceous leaves, axillary single-flowered peduncles, quaternary flowers, a bibracteolated calyx and numerous stamens, inhabiting Mauritius and the adjacent islands (Bourbon and Madagascar), called Bois de Nèfle (Medlar-wood), or Bois de Clous, on account of the hardness, by the colonists of Mauritius, were formed into a genus (*Jossinia*) by Commerson, adopted by De Candolle; but by other botanists these plants are incorporated with *Myrtus*, and apparently justly so. The present species is from Mauritius, whence it was introduced into Kew Gardens in the year 1824, and raised from seeds. Its flowering season is November, when its Myrtle-like flowers, copiously nestled among the dark green foliage, exhale the most delightful fragrance.

January 1st, 1851.

Descr. A *shrub*, with us attaining a height of six feet, copiously branched, everywhere glabrous. *Leaves* nearly sessile, between elliptical and orbicular, two inches long, thick and coriaceous, penninerved, obsoletely punctate beneath, the margins slightly recurved. *Peduncles* fasciculated, axillary, single-flowered, half an inch to an inch long, slightly thickened upwards. *Calyx* small, bibracteolate: *tube* hemisphærico-globose: the four teeth of the *limb* very short and obtuse. *Petals* four, orbicular, concave, yellow-white, distinctly punctated on the back. *Stamens* exceedingly numerous on a rather broad disc, a little longer than the petals. *Anthers* subglobose. *Style* subulate, rather longer than the stamens. *Stigma* obtuse. *W. J. H.*

Cult. A stiff, branched, bushy shrub, seven feet high, and being a tropical plant, it requires the heat of the stove. It is a robust grower, thrives in any kind of light loam, and requires to be well supplied with water during summer. Being of a clean habit, and not subject to insects, it is suited for a select collection of stove-plants. It increases readily by cuttings, which should be planted in sand under a bell-glass, and plunged in bottom-heat.

Fig. 1. Flower. 2. Calyx and pistil:—*magnified*.

Fitch del et lith.

Reeve & Nichols, imp

Tab. 4559.

ECHINOCACTUS Visnaga.

Visnaga or Monster Cactus.

Nat. Ord. Cactaceæ.—Icosandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4124.)

Echinocactus *Visnaga*; trunco maximo late elliptico multangulato sinubus angustis profundis angulis sinuato-tuberculatis, vertice lanatissimo, areolis approximatis rhomboideis umbilicato-immersis glabris pallide fuscis, aculeis validis 4, centrali erecto longo (biunciali), reliquis 3 deflexis brevioribus, floribus copiosis, ovario elongato densissime lanato superne aculeis mollibus sparsis, petalis serratis flavis.

Echinocactus Visnaga, *Hook. in Ill. Lond. News, for* 1846, *with a figure, and in Kew Garden Guide, ed.* 7. *p.* 53.

Echinocactus ingens, "*Zucc.*" *Pfeiff. Enum. Cact. p.* 54 *et* 180? *Salm-Dyk, Cact. p.* 27? (*name only*).

One of the most remarkable plants in the Cactus-house of the Royal Gardens of Kew, and that which chiefly attracts the attention of strangers, is the subject of the present plate. It bears the name of *Visnaga* with us (*Visnaga* means a tooth-pick among the Mexican settlers, and the plant is so called because that little instrument is commonly made of its spines), and under that name, believing it to be a new species, we had described it and it was figured in the 'Illustrated News' for 1846. I had, at one time, been disposed to refer the species to the *Echinocactus ingens*, of which a brief and most unsatisfactory character is drawn up by Pfeiffer (for Zuccarini does not appear to have noticed it) from some "dried flowers," and a living specimen "six inches high;" but it can scarcely be that, for the angles of the plant are said to be eight, the aculei nine in a cluster, and the petals obtuse. Our plate, at fig. 1, represents a very diminished figure of a specimen unfortunately no longer existing, but which in 1846 was an inmate of our Cactus-house, and apparently in high health and vigour. Its height was nine feet; and it measured nine feet and a half in circumference: its weight a ton! After a year of apparent health and vigour,

it exhibited symptoms of internal injury. The inside became a putrid mass, and the crust, or shell, fell in with its own weight. Other lesser ones were already and are still in the collection, and the one, from which one small flowering portion is represented of the natural size, weighs 713 lbs.; its height is four feet six inches; its longitudinal circumference ten feet nine inches, and its transverse ditto eight feet seven inches; its ribs amount to forty-four. All our plants were procured with great labour, and sent many hundred miles, over the roughest country in the world, from San Luis Potosi, Mexico, to the coast, for shipping, and presented to the Royal Gardens by Fred. Staines, Esq. It flowers through a good part of the year, but in comparison with the bulky trunk the blossoms are quite inconsiderable and void of beauty.

Descr. Six to nine feet high: in shape elliptical, copiously angled, glaucous-green, the summit crowned with a dense mass of tawny wool:* *furrows* deep but narrow, *ridges* forty to fifty, waved at the rather sharp edge, scarcely tubercled. *Areolæ* large, approximate, pale brown, forming a deep depression, so crowded as almost to touch one another, not woolly. *Spines* from the hollows of their areolæ four, strong, subulate: upper one the largest, erect, three lower ones patent, almost recumbent, all palish brown, darker near the base, strong and sharp, straight. *Flowers* copious from among the woolly mass at the summit of the plant. *Ovary* oblong or fusiform, three-fourths of it exserted from the wool, and covered itself by a dense mass of wool of the same colour; towards the summit are several scattered thickish bristles or soft spines. *Petals* numerous, spreading, yellow, oblong-spathulate, acute, serrated: innermost series an inch or an inch and a half long. *Stamens* very numerous, crowded. *Anther* small, orange. *Style* sunk among the stamens. *Stigma* of about twelve, elongated, filiform, wavy *lobes*. The corolla remains long in a withered state, and old flowers are not easily deciduous. *W. J. H.*

Cult. The division of *Cacteæ* to which this large species belongs are natives chiefly of Mexico, inhabiting dry rocky places and apparently deriving little nourishment from the ground: when we received this plant we were surprised to see

* This wool covers the whole *crown* of the plant, and is a few inches deep, and we are much mistaken if it is not a tuft of this substance, taken from an *Echinocactus Visnaga*, which constitutes that botanical curiosity from Mexico, long in the possession of the late Mr. Lambert (now at the British Museum), known under the name of the "*Muff Cactus*." A small quantity taken off the plant may, by handling and admitting air within the *staple*, be distended to a considerable size. An entire mass from a good sized plant, thus treated, might be made to assume the cylindrical form of the specimen alluded to.

the small quantity of roots, compared with the size of the plant. It is now growing in a round tub, half filled with drainage-material, the plant resting on a foundation of bricks raised in the middle of the tub, to prevent its sinking on account of its great weight. The upper portion of the tub is filled with soil, consisting of a mixture of loam and lime-rubbish nodules, firmly pressed round the base of the plant. It is kept in the Cactus-house, which, in order to suit tropical species, is maintained at a higher temperature in winter than is absolutely necessary for this and other Mexican species ;—we have already remarked, at Tab. 4486, that if Mexican *Cacteæ* could be cultivated in a house by themselves, they would require very little artificial heat. This plant has been nearly six years under our care: although it is apparently in a healthy state, and seems to grow, and though it has flowered, its increase is so small that we cannot determine the amount by simple measurement. From the tardy increase of what we believe to be young plants of this species (which, although now six years old from seed, are not yet more than two inches high and weigh barely two ounces), we infer that this species of *Echinocactus*, to arrive even at the size of what may be called the small specimen figured (as compared with another), and to assimilate the vast quantity of solid granular matter which it contains, must require a period of time amounting to many centuries. *J. S.*

Fig. 1. Entire plant, very much *diminished*.

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Tab. 4560.

SCHŒNIA oppositifolia.

Opposite-leaved Schœnia.

Nat. Ord. Compositæ.—Syngenesia Superflua.

Gen. Char. *Capitulum* multiflorum, heterogamum, floribus omnibus tubulosis, paucis in ambitu hermaphroditis fertilibus, cæteris centralibus styli abortu masculis sterilibus. *Involucri* cylindrici *squamæ* pluriseriales, scariosæ, sessiles, *exteriores* breviores, exappendiculatæ, *interiores* apice appendicula petaloidea radiante auctæ. *Receptaculum* epaleaceum, convexiusculum, alveolatum. *Corollæ* graciles, 5-dentatæ. *Stylus* in floribus hermaphroditis bifidus, basi bulbosus, ramis planiusculis apice capitellatis, in floribus masculis simplicissimus, apice incrassatus. *Achænia* fertilia, obovata, erostria, basi attenuata, dense seriacea, sterilia filiformia, nudiuscula, basi pilosa. *Pappus* omnium conformis, uniserialis, setosus, **setis serratis vel subplumosis.** *Steetz.*

Schœnia *oppositifolia* ; herbacea, caule hirsuto-canescente, foliis oppositis sessilibus lanceolatis acutis, corymbo terminali, involucri squamis interioribus longe radiantibus læte roseis, pappi setis rigidiusculis serratis.

Schœnia oppositifolia. *Steetz in Lehm. Plant. Preiss. v.* 1. *p.* 480.

A lovely Swan-River annual, quite equal in beauty to the *Lawrencella rosea* and to the *Rhodanthe Manglesii* of the same colony. Seeds were sent to us by Mr. Drummond, and our earliest plants blossomed in April 1846. The genus is founded by Steetz ; and is nearly allied to *Helichrysum*, *Helipterum*, and still more to *Pteropogon* of De Candolle, from which it is said to differ by the inner scales of the involucre being appendaged and radiant, by the many-flowered capitula, and by the central florets being truly male. The generic name is given in compliment to Dr. Schœn, an excellent botanical artist.

Descr. *Root* small, annual, branched. *Stem* erect, angled, downy, scaly, unbranched except in the terminal inflorescence. *Leaves* opposite, connate at the base, nearly erect, linear-lanceolate, obscurely three-nerved, acute, slightly downy and ciliate, sessile, upper ones acuminate, gradually passing into bracts. *Flowers* or *capitula* forming a broad handsome *corymb : peduncles* bracteated, *bracts* linear. *Involucre* subcylindrical, imbricated with scariose, ovate, rusty-green *scales*, the innermost row

radiate with the large, rose-coloured, oval, spreading *appendages*, exactly resembling radiate florets. *Receptacle* small, convex, alveolate, bearing many yellow *florets*, of which the *centre* are male, with an imperfect *pistil* and *style* and *stigma*: the outer ones hermaphrodite, with long recurved branches of the *styles* and conical *stigmas*. *Achenium* oblong, silky. *Setæ* of the *pappus* as long as the corollas. *Corollas* all tubular, five-toothed. *W. J. H.*

Cult. This plant, a native of Western Australia, must be treated as a tender annual. Its seeds should be sown in spring, in a pot or pan of light soil, placed in moderate heat; the plants, as soon as they are of sufficient size, must be transplanted singly into small pots, and kept for a time in a close frame, admitting air gradually to harden them; and as they become larger they must be shifted into larger pots, and, in order to have a greater show of flowers, four or five plants may be placed in one pot. When in flower they may be placed in the greenhouse. *J. S.*

Fig. 1. Lower portion of stem:—*natural size*. 2. Receptacle of capitulum. 3. Inner scale of the involucre. 4. Hermaphrodite floret. 5. Male do. 6. Seta from the achænium:—*magnified*.

Fitch del. et lith.

Tab. 4561.

LILIUM Wallichianum.

Dr. Wallich's Nepal Lily.

Nat. Ord. Liliaceæ.—Hexandria Monogynia.

Gen. Char. *Perigonium* corollinum, deciduum, hexaphyllum; *foliola* basi subcohærentia, infundibuliformi-campanulata, apice patentia v. revoluta, intus sulco nectarifero instructa. *Stamina* 6, perigonii foliolis basi subadhærentia. *Ovarium* triloculare. *Ovula* plurima, biseriata, horizontalia, anatropa. *Stylus* terminalis, subclavatus, rectus v. subcurvatus; *stigma* subtrilobum. *Capsula* trigona, sexsulca, trilocularis, loculicido-trivalvis. *Semina* plurima, biseriata, horizontalia, plano-compressa, testa lutescente, subspongiosa, membranaceo-marginata, rhaphe hinc per marginem decurrente. *Embryo* in axi albuminis carnosi rectus v. sigmoideus, extremitate radiculari umbilico proxima.—Herbæ *in Europa et Asia media et septentrionali, in Japonia et in Indiæ montibus, necnon in America boreali indigenæ, bulbosæ;* foliis *alternis v. subverticillatis, floribus magnis, speciosis, erectis v. nutantibus. Endl.*

Lilium *Wallichianum*; caule gracili folioso apice paucifloro nunc unifloro, foliis sparsis numerosis valde approximatis linearibus acuminatissimis sessilibus, floribus subhypocrateriformibus nutantibus, tubo longissimo, fauce campanulata nuda, limbo patente. *Wall.*

Lilium Wallichianum, *Roem. et Schultes, Syst. Veget. v.* 7. *p.* 1689. *Kunth, Enum. Plant. v.* 4. *p.* 267. *excl. var.* β. *Lindl. and Paxt. Fl. Gard.* 1850, *p.* 120, 121 (*woodcut*).

Lilium longiflorum, *Wall. Tent. Fl. Nepal. p.* 40. *t.* 29. (*not Thunb.*)

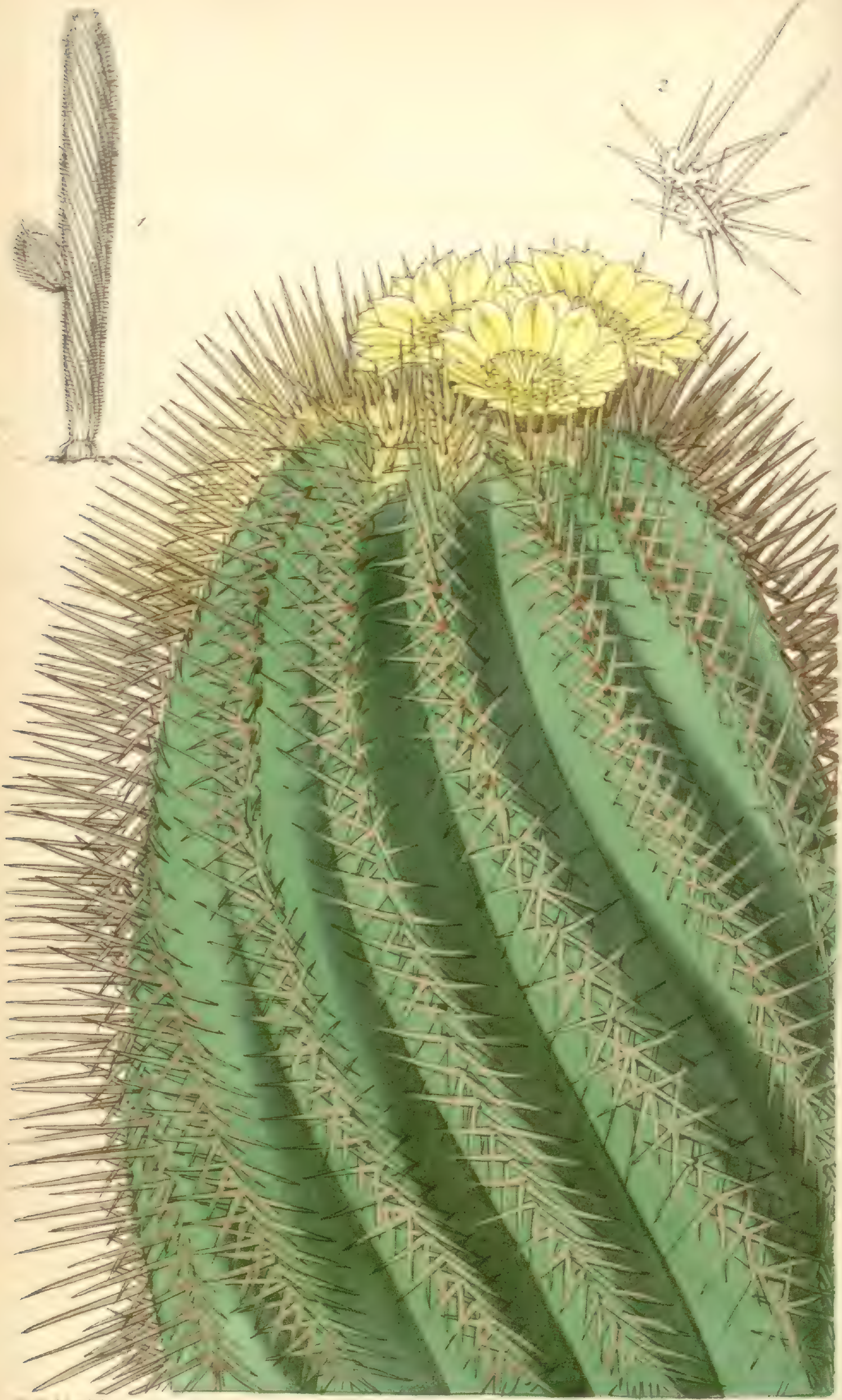
We are indebted to our friend Mr. Ferguson for a drawing and description of this fine and fragrant Lily, which was introduced to the Botanic Garden at Belfast by Major Madden, from the north of India ("Almorah"), and flowered in the autumn of 1850. It was first discovered by Dr. Wallich at Sheopore, and found near Sirrinuggur by Mr. Robert Blinkworth; the former gentleman gave an excellent representation in his 'Tentamen Fl. Nepalensis' (from which we have copied the roots), under the name of *L. longiflorum*, Wall., not being aware that there was a *L. longiflorum* of Thunberg, from Japan, a species already in our gardens, and by some apparently confounded with this species, though truly and permanently, we believe, distinct. Schultes changed the name of our plant most properly to *L. Wallichianum*. We possess fine native specimens from Dr. Wallich.

February 1st, 1851.

Descr. *Roots* consisting of broadly ovate, scaly *bulbs*, often aggregate, sending out branching *fibres* from beneath. *Stem* erect, simple, rounded, 4–6 feet high. *Leaves* numerous on the stem, frequently very crowded, lanceolate, or, upper ones especially, linear-lanceolate, sessile, glabrous, much acuminated, particularly those nearest the flower, having one or two faint lines on each side the midrib. *Flowers* terminal, drooping, solitary, as in all the specimens, we believe, that have flowered in this country; or two or three from the same point, and these umbellate, as in Dr. Wallich's figure, in which case the four or five upper leaves, or *bracteas*, constitute an *involucre*. *Peduncles* also bearing one or two lesser *bracteas*. *Sepals* nine inches or more in length, broadly ovato-lanceolate in the lamina, the lower part extended into a very long claw, which claws collectively form a long narrow *tube*, enlarging upwards, the lamina much spreading, so as to give the hypocrateriform character to the flower described by Dr. Wallich. This flower is fragrant, delicate cream white; the outer sepals having a prominent central ridge, are more or less tinged with yellow and green. *Stamens* included. *Anthers* an inch and a quarter long, yellow. *Ovary* six-angled, six-celled, oblong. *Style* a good deal longer than the stamens. *Stigma* large, capitate, with three gibbous reflexed *lobes*. *W. J. H.*

Cult. In habit this species resembles *L. longiflorum*, *speciosum*, &c., and grows as freely. As it is of recent introduction and comes from a different country, we are not yet certain that it will prove as hardy as the Japan species. But the latter, although known to be perfectly hardy, are, on account of their showy appearance, grown in pots as ornamental plants for the greenhouse in autumn; and for this purpose the present species may be added to their number. In winter the bulbs (in the pots) should be kept in a cool place, protected from frost. Early in spring they should be repotted, in a mixture of rich loam, leaf-mould, or turfy peat, with a portion of sharp sand. The pots must be properly drained, and placed in a cool pit or frame; at first they require but little water, but as they advance in growth and the heat of the season increases, they will require water and air to be freely given. When they begin to show flowers they should be placed in the greenhouse. *J. S.*

Fig. 1, 2. Roots:—*natural size*: copied from Dr. Wallich's figures.



Ettar del et lith.

Lemoine & Dr Louis imp

Tab. 4562.

ECHINOCACTUS STREPTOCAULON.

Spiral-stemmed Echinocactus.

Nat. Ord. Cacteæ.—Icosandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4124.)

Echinocactus *streptocaulon*; erectus (sesquipedalis) columnari-cylindraceus 12–14-sulcatus spiraliter tortus (nunc proliferus), angulis sulcisque acutis, areolis approximatis nudis (lana nulla) 8-aculeatis, aculeis fuscis rectis 7 patenti-radiatis mediocribus, unico centrali triplo majore verticali, floribus 3–4 terminalibus vix spinas superantibus flavis, petalis spathulato-lanceolatis, stigmatibus 9–12-linearibus staminibus longioribus.

A very distinct species of the genus *Echinocactus*, if we judge from the flowers; but almost a *Cereus* in the elongated habit of the plant, which we purchased from Mr. Bridges, who had brought it from Bolivia. We find nothing like it anywhere described, and have named it from the remarkably spirally twisted character of the stem, without, however, holding ourselves responsible that this is a constant or permanent mark of distinction. It flowered in the Cactus-house of the Royal Gardens, in August 1845.

Descr. Our *plant* is a foot and a half high, erect, columnar, cylindrical or a little contracted towards the base, occasionally proliferous, obtuse and woolly at the top, the sides fluted with twelve to fourteen spirally twisted, rather acute *ribs*, the *furrows* also acute. *Areolæ* densely crowded, often almost touching one another, and forming a nearly orbicular dark-coloured disc, free from wool, and bearing generally eight straight, palish brown *spines*: of these, seven outer are nearly equal, half an inch long, forming a spreading ray, while from the centre, one spine, twice or thrice the size of the rest, stands out vertically. From the woolly crown on the summit appear three or four yellow *flowers*, scarcely rising above the wool and not so long as the spines, an inch or an inch and a quarter in diameter, entirely of a sulphur-

yellow. *Petals* lanceolato-spathulate. *Stamens* numerous. *Anthers* subglobose. *Style* as long as the stamens. *Stigma* of many linear spreading rays. *W. J. H.*

Cult. From some peculiarity in the nature of the Cactus region of Chili and Bolivia, we find that *Cacteæ* imported from these countries do not so readily conform themselves to the artificial modes of cultivation to which they are necessarily subjected in this country, as allied species from Mexico. This is more especially the case with the *Echinocacteæ*. We learn that they inhabit very arid and hot places, enduring extreme drought, which is very obvious from the harsh, dry, and often dead-like appearance they present when they arrive in this country. The species now figured was introduced with many others about six years ago, by Mr. Bridges, and on inquiring of him the nature of their places of growth, and what mode he would recommend as best for cultivating them in this country, the point on which he laid the greatest stress was to *give them no water*. But we find that even harsh, dry-looking *Cacteæ* are, like many other dry-climate plants, capable of assuming a freer habit of growth by good treatment; the difference of the growth they make in this country, as compared with that of their native country, is so great, that the top and lower part of the same plant, if separated, might be taken as two distinct species. It is probable that many *Cacteæ* from dry regions, when placed under the influence of a climate more favourable to vegetable development, will assume a different aspect, varying according to the degree of heat and moisture they receive. In habit this species approaches *Cereus reductus*, figured at Tab. 4443, and what is there stated as regards cultivation is suitable for this species. *J. S.*

Fig. 1. Reduced plant. 2. Areolæ with spines :—*natural size*.

Fitch, del et lith.

Reeve & Nichols imp

Tab. 4563.

TAMARINDUS officinalis.

Tamarind-tree.

Nat. Ord. Leguminosæ.—Monadelphia Decandria.

Gen. Char. Calycis sepala 5, basi in tubum coalita, superne libera, reflexa, 3 oblonga, 2 inferiora in lobum unicum latius binervosum sæpe apice bidentatum connata. *Petala* 3, cum sepalis superioribus alterna, 2 ovata, medio cucullata. *Stamina* 9–10, 2–3 longiora inter se monadelpha, antherifera, 7 brevissima, sterilia. *Stylus* subulatus. *Legumen* pedicellatum, acinaciforme, compressum, uniloculare, 3–6-spermum, valvis inter epispermium et endospermium pulposis. *Semen* ad hilum oblique truncatum, ovato-quadratum. *Cotyledones* basi inæquales.—Arbores. Folia *abrupta, pinnata, multijuga.* Flores *racemosi. DC.*

Tamarindus *Indica.*

a. leguminibus elongatis, latitudine nempe sextuplo et ultra longioribus, 8–12-spermis. *DC.*

Tamarindus Indica. *Linn. Sp. Pl. p.* 48. *(excl. Syn. Loefl.) Roxb. Fl. Ind. v.* 3. *p.* 215. *De Cand. Prodr. v.* 2. *p.* 488. *Wight et Arn. Fl. Penins. Ind. Or. v.* 1. *p.* 285. *Woodv. Med. Bot. t.* 166. *Spreng. Syst. Veget. v.* 3. *p.* 158. *Lindl. Med. Bot. p.* 266.

β. leguminibus abbreviatis, latitudine nempe vix triplo longioribus. *DC.*

Tamarindus occidentalis. *Gærtn. Fruct. v.* 2. *p.* 310. *t.* 146. *Jacq. Amer. p.* 10. *t.* 10. *& t.* 179. *f.* 98. *De Cand. Prodr. v.* 2. *p.* 489. *M'Fad. Fl. Jam. v.* 1. *p.* 335.

Most authors make two species of *Tamarindus*, the Indian kind, with long pods, and the West Indian, with short pods: but even those who adopt this view of the subject generally raise a question of their specific identity. India is probably the aboriginal country of both, whence the species was introduced to Western India. Even in the East the Tamarinds of the Archipelago are considered the best of those of India. The Arabs called the tree "*Tamr hindee*," or *Indian Date*, from which has been derived the generic name *Tamarindus*. Our small Tamarind-tree, in the Royal Gardens, about fourteen feet high, whence our flowering specimens were taken, is probably the West Indian variety, and can give no idea of the general appearance of a full-grown tree, which all travellers agree in saying is one of the noblest

objects in nature. "This most magnificent tree," says Dr. Roxburgh, "is one of the largest in India, with a most extensively spreading and shady head, or coma; the bark dark-coloured and scabrous, the wood hard, very durable, and most beautifully veined." Dr. M'Fadyen, too, observes that the tree is "very ornamental, and affords a delightful shade." The inhabitants of the East, however, have a notion that it is dangerous to sleep under, and it has been remarked, as of our Beech in Europe, that the ground beneath is always bare, and that no plant seems to thrive under its branches. Its flowers have little beauty to boast; they are insignificant and exhibit no bright colours. Our plant has not borne fruit, but flowers in the summer season, and generally, but not always, casts its leaves during our winter.

The extensive use of the pulpy fruits of the *Tamarind* is well known, as are its valuable medicinal properties. In the East they are preserved without sugar, being merely dried in the sun, when they are exported from one part of the Archipelago to another, and cured in salt when sent to Europe. "In the West Indies," says the lamented Dr. M'Fadyen, "the pulp is usually packed in small kegs between layers of sugar, and hot syrup is poured on the whole. In order to enable them to keep without fermentation for a length of time, the first syrup, which is very acid, is poured off, and a second is added. A very excellent preserve is imported from Curaçoa, made from the unripe pods, preserved in sugar, with the addition of spices." The seeds are eaten in India in times of scarcity by the poorer classes, the very astringent integument being first removed, and, then roasted or fried, are said to resemble the common field-bean in taste.

Descr. A *tree* attaining, when fully grown, a very large size, with a vast, dense and bushy head of branches, thickly clothed with light and feathery foliage. *Leaves* paripinnated, with twelve to sixteen pairs of small, opposite, oblong, obtuse, sessile *leaflets*. *Stipules* small, caducous. *Racemes* terminal on the small branches in our plant, said to be sometimes lateral, few-, six- to eight-flowered. *Calyx* of four, ovate, spreading *sepals*; one, larger, being formed of two combined, all pale greenish-yellow, united into a tube at the base. *Petals* three, nearly equal, pale yellow, streaked with red: one more concave, the *vexillum*: two setæ at the lower base at the stamens are considered to represent the two *carinal petals*. *Stamens* nine, monadelphous below; only three elongated and bearing perfect anthers. *Ovary* sickle-shaped, stipitate. *Style* attenuated: *stigma* obtuse. *Fruit* an almost linear, thick, indehiscent *legume*. *Pericarp* within (that is, between the epicarp and sarcocarp)

containing a great quantity of *pulp* mixed with coarse *fibres*. *Seeds* very hard, rich brown, subrhomboidal. *W. J. H.*

Cult. The Tamarind is a large, spreading, hard-wooded tree, a native of the East and West Indies, and, on the authority of the 'Hortus Kewensis,' appears to have been grown in this country more than 200 years ago. It requires to be kept in a warm stove, and thrives in a mixture of loam and leaf-mould. Towards the end of the winter it sheds its leaves; it will then need but little water, just sufficient to keep the soil from becoming quite dry, but when the young leaves begin to unfold, and during the summer, it must be watered freely. It can be increased by cuttings, but more readily by seeds, which are often received from the East and West Indies: these should be sown in a hotbed or a warm part of the stove, and, when about an inch high, transplanted into separate pots, shifting them into larger ones as the plants increase in size. *J. S.*

Fig. 1. Stamen and two setæ. 2. Pistil:—*both magnified.*

Fitch, del et lith.

Reeve & Simmons, imp.

Tab. 4564.

PISTIA Stratiotes.

Water Lettuce.

Nat. Ord. Aroideæ (Pistiaceæ).—Monœcia Pentandria.

Gen. Char. Spatha basi tubulosa, cum spadice connata: *limbo* patente, *processu* spadicem superne involucrante aucto. *Spadix* interrupte androgynus, basi fœmineus, apice libero masculus. *Antheræ* 3–8, spadicis apice incrassato adnatæ, subglobosæ, sulco transverso dehiscentes. *Ovarium* 1, spadicis basi adnatæ oblique insidens, 1-loculare; *ovula* plurima, e placenta prope basim parietali subhorizontalia (erecta, *Blume*), orthotropa. *Stylus* terminalis, crassus. *Stigma* subcyathiforme. *Bacca* 1-locularis, poly- vel abortu oligosperma. *Semina* cylindrica, per hilum basilare funiculo brevissimo patelliformi insidentia, testa (arillus, *Turp.*) coriacea, crassa. *Embryo* minimus, cylindraceus, in apice albuminis inclusus; *radicula* hilo e diametro opposita.—Herbæ *aquaticæ*, *liberæ*, *natantes*, *flagelliferæ*; radicibus *fibrosis*. Folia *sessilia*, *rosaceo-expansa*, *integerrima*, *nervosa*. Spadices *axillares*, *solitarii*, scapo *brevi suffulti*. *Kth.*

Pistia *Stratiotes*; foliis rosulatis cuneatis retusis, nervis subtus lamellæformibus basi confluentibus, antheris 5 (an semper?), spadice antheras haud superante.

Pistia Stratiotes. *Linn. Fl. Zeyl. n.* 322. *Roxb. Corom. v.* 3. *t.* 268. *Ejusd. Fl. Ind. v.* 3. *p.* 331. *Spreng. Syst. Veg. v.* 2. *p.* 772. *Kunth, Enum. Plant. v.* 3. *p.* 8. (*Here probably may also be referred* P. Ægyptiaca, *Schleid.*; P. crispata, *Bl. & Kth.*; P. minor, *Bl. & Kth.*; P. occidentalis, *Bl. & Kth.*; P. linguiformis, *Bl. & Kth.*; P. Leprieurii, *Bl.*; P. Gaudichaudii, *Schleid.*; P. spathulata, *Mich. & Kth.*; P. commutata, *Schleid. & Kth.*; *and* P. obcordata, *Schleid. & Kth.*—Pistia? vivipara, *Schleid., we are told, is* Parkeria juvenilis!)

Kodda-pail. *Rheede, Hort. Malab. v.* 11. *p.* 32.

Plantago aquatica, &c. *Rumph. Amb. v.* 6. *p.* 74.

Lenticula palustris, &c. *Sloane, Jam. v.* 1. *t.* 2. *f.* 2.

Pistia aquatica, &c. *P. Browne's Jam. p.* 399.

With no floral beauty to recommend it, a more delicate and graceful object cannot well be seen, in a tropical house, than a vessel of water or a tank with tufts of *Pistia Stratiotes* floating on the surface, of the tenderest green imaginable: the leaves are connected together into a rose-shaped tuft, and these send out runners bearing other plants in all stages of growth. Dr. Roxburgh aptly compares them to half-grown Lettuce-plants.

February 1st, 1851.

They continue in great beauty all summer and autumn, and in early winter they show symptoms of weakness or decay; but, with a little care, plenty of young plants may be retained for the following spring, when they soon revive and reproduce by offsets. The flowers, or inflorescence, are nestled at the base of the leaf, and it may easily be seen there, by some of the young unfolded leaves, that the spatha which encloses the flowers is nothing but a modified leaf, the lower sides involute, and bearing the stamens and pistil. These flowers possess no beauty. The roots are a very pretty object on a plant being lifted out of the water, for here, as in the Duckweed (*Lemna*) of our own country—and *Pistia* is sometimes called tropical Duckweed,—the roots descend loose into the water, with no necessary attachment to soil or mud, and are long and feathery.

Like many water-plants, it has a very extended range, perhaps all round the world, in tropical or subtropical regions. In America it extends as far north as Louisiana and Mississippi and North Carolina. From Africa, I possess specimens from Egypt in the north, from the Niger country near the middle, and from Port Natal in the south. In the warm parts of India it seems to be universal; and in the Malay Islands. In Antigua, of the West Indies, Patrick Brown tells us it is most abundant in all the ponds of water preserved for public use, and keeps the water always fresh and cool, which would be greatly subject to putrefaction and charged with a multitude of insects, had they continued exposed to the heat of the sun. The plant, however, is there considered acrid, and when the droughts set in and the waters are reduced very low (which frequently happens in that island), they are overheated and so impregnated with the particles of this vegetable, that they occasion bloody fluxes to such as are obliged to use them at those seasons.

I am aware that some botanists are disposed to consider that there are several distinct species of *Pistia*, and Professor Kunth goes so far as to constitute two groupes, and of one groupe to make two subgroupes, including altogether no less than *nine* species: but the characters are wretchedly defined, and I must confess, that as far as can be collected from the dried state of the copious specimens in my herbarium, there is no reason for constituting more than one species. Others, however, must judge for themselves. Our plant here figured is derived from Jamaica, and quite accords with Roxburgh's from the East Indies;—yet Sloane's Jamaica species (Hist. t. 2. f. 2) is referred by Kunth to his *P. commutata*, and Brown's Jamaica plant to *P. obcordata*.

Descr. Each *plant* sends down a tuft of long, soft, feathery fibres, and consists of a collection of rosulate *leaves*, which are

from two to four or five inches long, slightly concave in the disc, the apex and margins reflexed, cuneate in shape, more or less broad and always obtuse or retuse at the apex, and more or less tapering at the base; both sides are soft to the touch and velvety, of a delicate pale pea-green colour, with a kind of mealy down beneath; both sides are marked with simple or branched parallel or slightly divergent lines, below more prominent, and almost lamellate, which unite below so as to form a thickened base. Their *colour* is generally the same as the leaf, sometimes darker, and in some specimens, from Mexico and from Demerara, these lines are of a brownish or blackish hue. From the base or axils of the young leaves in the centre the *spathas* appear, nearly sessile, hairy, oblong-ovate, pale yellow-green, the lower half having the sides convolute into a sheath, the upper half or *limb* is spreading, ovate, acute, striated; the whole length scarcely three-quarters of an inch. At the base of the limb within, is a cup-shaped *scale*, green, and lobed, giving rise to a short column or spadix, bearing, on a level with the summit, in a circle, five, oblong, four-celled *anthers*, attached by their back and sessile, opening by four, small, oblong *lines* or *pores* in the front. Beneath this cup-shaped scale is another nearly orbicular and bifid one, and below that, occupying the whole length of the inside of the folded portion of the spatha, is situated the single *ovary*, oblong, membranous, striated, downy, one-celled, bearing numerous oblong *ovules* all along the inner axis: its upper part terminates in a tapering incurved *style*, with a capitate or almost cup-shaped *stigma*, downy at the top, and nearly reaching to the anthers. Many of the ovules prove abortive. The *seeds*, as described in the generic character, are well figured by Mirbel, in the *Annales du Mus. d'Hist. Nat. p.* 16. *t.* 17. *W. J. H.*

Cult. In the West Indies this singular plant covers the surface of stagnant waters in the same manner as the several species of *Lemna* do in temperate countries. In this country it must be grown under glass, in a cistern or tank of water at a temperature ranging in summer between 70° and 80°. The depth of the water, whether several feet or only a few inches, is unimportant: when it grows in deep water its roots do not reach the bottom. As it increases rapidly by producing stolons, or runners, in the form of rays, each of which bears a young plant, which becomes a new centre for producing stolons, it will, if allowed, soon occupy in one summer more space than can often be afforded for growing tropical aquatics. It will also grow freely in a small shallow tub or pan; and, although its natural habit is to *float*, yet it appears to thrive more luxuriantly in water only a few inches deep, so that the roots reach the soil: and it may be stimulated to grow to a size much larger than usual, by placing a thin layer

of rich soil or very rotten dung in the vessel. Soft water is essential to its healthy cultivation, and in summer it should be shaded during the middle of the day, otherwise it is apt to become yellow and to have an unhealthy appearance. *J. S.*

Fig. 1. Spatha, including male and female inflorescence. 2. The same laid open vertically, showing the pistil and above it the spadix, &c., with the stamens. 3. Ovary cut through vertically :—*magnified.*

Fitch, del et lith

Reeve & Nichols imp

Tab. 4565.

PASSIFLORA PENDULIFLORA.

Drooping-blossomed Passion-flower.

Nat. Ord. Passifloreæ.—Monadelphia Pentandria.

Gen. Char. (*Vide supra*, Tab. 4406.)

Passiflora (§ Decaloba) *penduliflora*; glabra, foliis brevi-petiolatis semi-orbiculari-cuneatis transversim truncatis obscure 3-lobis 3-nerviis 3-setosis subtus glandulosis, pedunculis solitariis geminisve elongatis pendulis prope basin articulatis bibracteolatis, calycis tubo hemisphærico 10-gibboso, coronæ aurantiacæ filamentis paucis uniserialibus clavatis erectiusculis.
Passiflora penduliflora. *Bert. in De Cand. Prodr. v.* 3. *p.* 326.

Apparently a very little-known Passion-flower: at any rate, I find no mention of it anywhere, save in the brief character of De Candolle above quoted. Though destitute of the varied colouring of many of the species of the genus, there is a grace and elegance in the plant that render it an object well worthy of cultivation: the flowers are very copious and hang downwards from peduncles much longer than the leaves, and these leaves are very singular in shape. We received our plants from the island of Jamaica, where, indeed, it would appear to be very common, judging from the copious specimens we have received from the late Dr. M'Fadyen and Dr. Distan, and Messrs. Purdie and Wilson. It flowers in spring and summer.

Descr. A climbing glabrous *shrub*, with the young *branches* herbaceous and striated. *Leaves* copious, approximate, on very short *petioles*, varying a good deal in shape, but the general form is that of half an ellipsis approaching to cuneate, truncate, but more or less distinctly three-lobed, with three setæ, three-nerved, with a row of five or six *glands* on each side the midrib. *Tendrils* simple, reddish. *Peduncles* solitary or geminate from the axil of a leaf, single-flowered, pendulous, jointed, and with two minute *bracteoles* above the base. *Flower* drooping, pale yellow-green. *Calyx-tube* hemispherical, ten-lobed: the five lobes of the *limb* oblong, very acute. *Petals* resembling the

calyx-lobes, but a little longer. *Nectariferous crown* deep orange, of from twelve to fourteen short, nearly erect, club-shaped *rays*. *Column* of *stamens* very long. *Anthers* green, curved. *Styles* three. *Stigmas* globose. *W. J. H.*

Culr. About one hundred and fifty species of *Passiflora* are now described, which, with very few exceptions, are natives of the West Indies and the continent of America, chiefly within or near the tropics. Many of them have long been cultivated in this country, but none are sufficiently hardy to endure the low temperature of our winters, except the well-known and widely diffused *Passiflora cærulea*, which is recorded to have been cultivated in this country 152 years ago. It is stated to be a native of Brazil and Peru; its hardiness is therefore remarkable, seeing that we have many other species from those countries, all of them requiring to be grown either in the greenhouse or stove. The present species must be grown in the stove. Being, like its allies, a free and rambling grower, it is well adapted for covering trellis-work against back walls, and for training up pillars or rafters; but where so much space cannot be afforded, it will grow and flower freely if planted in a middle-sized pot and trained on a wire trellis. In order to keep it within due bounds, it is necessary, in winter, to prune and cut back the superfluous growth of the previous summer; this will cause it to flower more abundantly. Any kind of light open soil suits it; and it is propagated by cuttings planted under a bell-glass, and treated in the usual way. *J. S.*

Fig. 1. Portion of the nectariferous ray:—*magnified*.

1.

2.

3.

Fitch, del et lith

Reeve & Nichols imp

Tab. 4566.

THIBAUDIA macrantha.

Large-flowered Thibaudia.

Nat. Ord. Vacciniaceæ.—Decandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4303.)

Thibaudia *macrantha*; glaberrima, ramis divaricato-pendulis, foliis lanceolatis longe acuminatis integerrimis, pedunculis extra-axillaribus binis ternisve pendulis sursum incrassatis, corollæ rubro-lineatæ tubo ampullaceo 5-angulato, ore contracto, limbi laciniis reflexis, stylo antherisque exsertis.

We represented what we considered to be the prince of the East Indian *Thibaudias* at our Tab. 4303 (*T. pulcherrima*), and in the rich abundance of its handsome flowers it has the superiority over this: but here, each individual flower is much larger and handsomer than in that species. We have measured these flowers two inches and a quarter long, and one inch in diameter; the texture and marking resemble some handsome piece of china or porcelain. The plant is raised from seeds by Mr. Veitch, from Kola Mountain, Moulmain, whence they were sent by Mr. Thomas Lobb. It accords with many of the characters of *Thibaudia* (*Agapetes*, De Cand.) *loranthifolia*, Wall.; but that species is downy, and differs in other points. We have rarely seen a more truly lovely plant. It flowered in the stove of Messrs. Veitch in December 1850.

Descr. A rather straggling *shrub*, with light brown smooth *bark*. *Leaves* alternate, on very short thick *petioles*, lanceolate, much acuminated, entire, glabrous, spreading. *Flowers* from the woody portion of the stem, extra-axillary. Two to three *peduncles* spring from the same point, and are pendent, thickened upwards, and red. *Flowers* large, and hanging down. *Calyx* small, pale yellow. *Tube* short-globose, incorporated with the ovary, and jointed on the thickened apex of the pedunele: the *lobes* small, acute, erect. *Corolla* large, pure china-white, yellow

at the base and apex: the *tube* ampullaceous, five-angled; between the angles are numerous distinct, oblique, wavy red lines, generally taking the shape of the letter V, and more or less united: the *mouth* of the corolla is contracted: the five acute *lobes* reflexed. *Stamens* and *style* considerably exserted beyond the mouth of the corolla. *Filaments* very short, broad, cucullate; *anthers* much elongated, the cells above opening internally by a longitudinal fissure: there are no reflexed spurs at the back of the anthers as in our *T. pulcherrima*. *Ovary* adherent with the tube of the calyx, crowned by a five-lobed epigynous gland. *Style* longer than the stamens: *stigma* obtuse. *W. J. H.*

Cult. This interesting plant has not yet come into our hands, the only plants in this country being in the possession of Mr. Veitch, of the Exeter Nursery. We learn that it is an evergreen shrub of easy cultivation, and that it flowered when not more than two feet high. It is treated as a stove-plant; but, judging from its allies and from its native climate, we are inclined to think it will succeed in a close greenhouse; a moist dull atmosphere being maintained in summer, and artificial heat applied in winter only during frost, or when there is a continuance of cold cloudy weather, with the thermometer seldom rising above 40°: during such weather, the day-temperature should be kept at about 50°. Like many species of this family, the present is probably subepiphytal, deriving its chief nourishment from an atmosphere charged with moisture, and at a medium temperature; such being the general character of the lower region of *Ericaceæ* and *Vacciniaceæ* within the tropics. *J. S.*

Fig. 1. Calyx and pistil. 2. Stamens, seen from without. 3. Two stamens seen from within:—*magnified.*

2

Tab. 4567.

ECHINOPSIS CAMPYLACANTHA.

Curve-spined Echinopsis.

Nat. Ord. Cacteæ.—Icosandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4521.)

Echinopsis *campylacantha* ; (subpedalis) ovato-globosus, costis 14–16 verticalibus subcompressis obtusis, areolis magnis approximatis ellipticis lanatis, aculeis subulato-acicularibus rigidissimis flavicantibus apice brunneis exterioribus 8–10 radiantibus rectiusculis (uncialibus et ultra) centrali longissima (3-unciali) sursum curvata, calycibus infundibuliformibus sparsim squamosis, squamis hirsutissimis.

Echinopsis campylacantha. *Pfeiff. in Salm-Dyk, Cact. Hort. Dyk, p.* 39.

Echinocactus leucanthus. *Gill. in Bot. Reg.* 1840. *t.* 13 (*not* E. leucacanthus, *Zucc.*)

Cereus leucanthus. *Pfeiff. Enum. Cact. p.* 71.

A fine and well-marked species, with handsome flowers, readily distinguished by the great length of the central spine of the areolæ, and by its taking an upward and inward curve, a direction to which the other radiating spines are more or less inclined. It is a native of the Argentine province of Mendoza, at the eastern foot of the Andes, where it was discovered by the late Dr. Gillies, and introduced by him to our Gardens, with many others from that region, which we fear are now mostly lost to us. It flowers in the spring and summer months.

Descr. Our *plants* are, the largest of them, a foot high, in shape between ovate and globose, not unlike that of a pine-apple, rather acute at the top, longitudinally furrowed : *ridges* fourteen to sixteen, considerably elevated, scarcely compressed, obtuse ; the edges slightly tubercled or lobed. *Areolæ* approximate, large, oval, woolly, bearing from eight to ten strong but rather slender *spines*, generally tawny, tipped with dark brown :—of these eight to ten form the circumference and spread in a stellated manner, yet having a slight curve upwards, an inch or rather more long ; the central spine is solitary, nearly three inches long, and has a remarkably upward curve towards

the apex of the plant. *Flowers* from the areolæ near the summit of the plant, about six inches long. Calycine *tube* funnel-shaped, olive-green, bearing many scattered woolly *scales*; the segments of the limb gradually passing into the spreading, acute, pale rose-coloured *petals*. *Stamens* very numerous, compact. *Style* included. *Stigma* of about twelve linear, elongated rays. *W. J. H.*

Cult. The observations respecting the culture of *Echinocacteæ*, given at Tab. 4521 and Tab. 4562, are applicable to this species. *J. S.*

Fig. 1. Rays of the stigma :—*magnified*. 2. Entire plant :—*much reduced*

Furch del et lith

Reeve & Nichols, imp.

Tab. 4568.

DOMBEYA viburniflora.

Viburnum-flowered Dombeya.

Nat. Ord. Byttneriaceæ.—Monadelphia Polyandria.

Gen. Char. Calyx 5-partitus, persistens, involucello triphyllo unilaterali cinctus. *Petala* 5. *Stamina* 15–20, filamentis vix basi coalitis, 5 sterilia, 2–3 fertilia inter quodque sterile. *Stylus* 1, apice in stigmata 5 subreflexa fissus. *Carpella* 5, bivalvia, 1 ∞ polysperma, in capsulam arcte connexa. *Cotyledones* contortuplicatæ, bifidæ. *De Cand.*

Dombeya *viburniflora*; arborea, ramis petiolisque hirsutis, foliis longe petiolatis cordatis plerumque serrulatis supra pubescentibus subtus tomentosis, stipulis ovato-acuminatis, pedunculis elongatis, corymbis compositis, calycibus reflexis, pedicellis bracteisque lanatis, petalis oblique spathulatis (albis) siccitate ochraceis nitidis.

Dombeya viburniflora. *Bojer, in Ann. des Sc. Nat. 2nd Ser. p.* 796.

A native of the Comorin Islands, near Madagascar, according to Professor Bojer, who introduced the tree thence to Mauritius, from which latter island we have received it at Kew. With us, confined in a tub, it has attained a height of 12–14 feet, so that its rather small white flowers are not very conspicuous objects. Its nearest affinity is with *D. palmata*, Wall., Pl. Asiat. Rariores; but the latter has seven spreading lobes to the leaves, and larger flowers with broader petals. It flowers with us in February.

Descr. A *tree* with us attaining a height of fourteen feet or more, with a bushy head of copious *branches*: the *branches* and long *petioles* clothed with spreading hairs. *Leaves* moderately large, cordate, rather soft to the touch, three-lobed, the *lobes* acuminate, straight (pointing forward), serrated, with rather a deep sinus at the base, upper side green, downy; under side pale, almost woolly: *stipules* rather large, ovate, acuminate, herbaceous, deciduous. *Peduncles* a span and more long, from the axils of the upper leaves, and bearing a compound dichotomously divided *corymb* of rather small white *flowers*. *Bracteas* and *involucre* ovate, caducous. *Calyx* of five ovato-lanceolate, re-

flexed, woolly segments. *Petals* spreading, oblique and obliquely spathulate, white and delicate when fresh, glossy, tawny, and assuming a horny character when dry. *Stamens* monadelphous, the *tube* short, soon dividing into five bundles of three each, fifteen in all, and having a sterile, elongated, club-shaped *filament* alternating with each bundle. *Ovary* globose, hairy: *style* divided almost to the base into five branches, erect: *stigmas* five, obtuse, spreading. *W. J. H.*

Cult. This is a soft-wooded tropical tree, of quick and robust growth. It requires a warm stove, and, if duly encouraged, will soon require more room than can often be afforded where a general collection of stove plants is kept. It grows freely in any kind of light loam, and, as its large leaves part with water rapidly during hot dry weather, it is necessary to supply it freely with water at the roots, in order to prevent the leaves from flagging. It is readily increased by cuttings planted under a bell-glass, and placed in bottom-heat. *J. S.*

Fig. 1. Expanded flower. 2. Flower, deprived of its petals. 3. Pistil:—*magnified.*

1.

Fitch del et lith.

Reeve & Nichols imp.

Tab. 4569.

MEDINILLA Javanensis.

Javanese Medinilla.

Nat. Ord. Melastomaceæ.—Octandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4533.)

Medinilla *Javanensis*; caule fruticoso, ramis acuto-tetragonis lævibus, foliis sessilibus elliptico-ovatis acutis quintuplinerviis integerrimis basi subcordatis, paniculis terminalibus axillaribusve erectis strictis, bracteis obsoletis, calycis dentibus 5 minutissimis, staminibus 10 parvis, antheris basi antice bi-gibbosis dorso calcaratis.

Medinilla Javanensis. *Blume, Flora, v.* 14. *p.* 515. *Walp. Repert. Bot. v.* 2. *p.* 142.

Melastoma Javanense. *Blume, Bijdr. p.* 1078. *De Cand. Prodr. v.* 3. p. 147.

This, though correctly referred by Blume to *Medinilla*, has little of the beauty of *M. speciosa* and *M. magnifica*, and others of the genus; but it forms a handsome shrub, with ample, five-nerved foliage. We are indebted to Messrs. Rollisons, of Tooting, for this plant, which they imported through their collector from Java, along with another species of the genus, *M. crassifolia*, which has flowered at the same time with this, viz., in December 1850. Inhabits the stove.

Descr. A *shrub* of erect habit, with acutely four-sided, smooth *branches*. The *leaves* large, sessile, elliptical-ovate, acute, entire, five-nerved, somewhat cordate at the base, the *costa* red at the setting on of the leaf: the general colour dark green, pale and slightly tinged with red beneath. *Panicle* terminal and lateral (Blume), small, compact. *Bracts* small, deciduous. *Calyx* turbinate, pale flesh-colour, glabrous, with five very minute teeth. *Petals* five, obovate, pale rose-colour. *Stamens* small, ten. *Filaments* subulate, white. *Anthers* dark purple, with two yellowish obtuse spurs or gibbosities at the base in front, and one deflexed at the base behind. *W. J. H.*

March 1st, 1851.

Cult. This plant, being a native of Java, and, like others of the genus, subepiphytal, requires to be grown in a moist stove. A mixture of light loam and sandy peat soil, or leaf-mould, suits it. It should be well drained, and, as it is not a strong-rooting plant, care must be taken not to over-pot it. It propagates freely from cuttings treated in the usual way. *J. S.*

Fig. 1. Stamen :—*magnified.*

Fitch del et lith

Reeve & Nichols imp

Tab. 4570.

SOBRALIA SESSILIS.

Sessile-flowered Sobralia.

Nat. Ord. Orchideæ.—Gynandria Monandria.

Gen. Char. (*Vide supra*, Tab. 4446.)

Sobralia *sessilis*; caule foliisque subtus nigro-pubescentibus, foliis sessilibus oblongo-lanceolatis acuminatis 2 terminalibus squamæformibus acuminatis herbaceis, floribus sessilibus, labello rhombeo-oblongo glabro lamellis 2 intramarginalibus prope basin. *Lindl.*

Sobralia sessilis. *Lindl. Bot. Reg. Misc.* 1841. *n.* 11. *Bot. Reg.* 1841. t. 17.

A native of British Guiana, where it was discovered and imported to Messrs. Loddiges' collection about ten years ago, by Sir R. H. Schomburgk, and then first described by Dr. Lindley. It is, as he remarks, not one of the most showy of this fine genus. With us it flowers in October.

Descr. Terrestrial. *Stems* one and a half to two feet high, erect, tufted, reed-like, jointed, sheathed by the base of the leaves and clothed with black or dark-coloured hairs. *Leaves* few, near the apex of the plant, broad-lanceolate, very much acuminated, nerved and plaited, paler beneath: the two superior ones immediately beneath the flower are small (but unequal) and bracteiform. *Flower* solitary, terminal, larger and different in colour in our plant from Dr. Lindley's above quoted. *Sepals* and *petals* nearly white, or but slightly tinged with rose, the *former* spreading, oblong-lanceolate, acute; the latter larger, broader, obtuse, and erecto-patent. *Lip* yellowish, deeply stained with rose-purple, obovato-rhomboid, tapering into a narrow white claw at the base, within this claw are two small white *lamellæ*: the margin is waved, the sides turned in. *Column* very much elongated but thicker upwards: the *anther* lodged in a cavity (*clinandrium*) at the top of the column. *W. J. H.*

Cult. This is a species of a very pretty genus of terrestrial

Orchids, natives of tropical America, growing in hot, dry places, and producing their showy flowers on the apex of slender reed-like stems, which rise from fascicles of thick, fleshy, interlacing roots. It requires to be kept in the warm division of the Orchid-house, and grows freely in a mixture of light loam and sandy peat. On account of its roots not going deep, it should be grown in a wide shallow pot, which must be well drained, so as to allow water to be given freely in summer without risk of the soil becoming saturated. It is increased by division of the roots; but, in doing this, great caution is necessary, for, on account of their compact interlacing, they are not easily separated without injury. *J. S.*

Fig. 1. The lip. 2. The column :—*magnified.*

Fitch, del et lith.

Reeve & Nichols imp

Tab. 4571.

DRACÆNA Draco.

Dragon's-blood Tree.

Nat. Ord. Asparagineæ, *Kth.*—Hexandria Monogynia.

Gen. Char. Perigonium corollaceum, tubulosum, profunde sexfidum, deciduum; laciniis subspathulato-linearibus, obtusis, uninerviis, æqualibus, patentissimis vel recurvatis. *Stamina* 6, fauci perigonii inserta, exserta, erecto-patula. *Filamenta* plana, anguste linearia, apice subulato-attenuata. *Antheræ* biloculares, oblongæ vel lineari-oblongæ, apice bilobæ, basi bifidæ, dorso medio affixæ, introrsæ. *Ovarium* liberum, sessile, oblongum, triloculare; *ovula* in loculis solitaria, sessilia, adscendentia, anatropa. *Columna* stylina filiformis, sulcato-triangularis, erecta, stamina superans. *Stigma* trilobum; lobis rotundatis. *Bacca* subglobosa vel tripulvinato-globosa, carnoso-succulenta, 1–3-sperma. *Semina* subglobosa. *Embryo* in basi albuminis cornei ad latus externum locatus.—Caules *arborei vel frutiosi, simplices vel ramosi*, foliis *delapsis semiannulato-cicatrizati*. Folia *in apice caulis et ramorum conferta, lanceolata vel linearia, integerrima, sæpe inferne angustato-petiolata, ima basi semiamplexicaulia, striato-nervosa, pergamenea vel subcoriacea, glabra*. Paniculæ *terminales, solitariæ, simplices vel ramosæ, bracteatæ, rarissime ad racemum solitarium reductæ*. Flores *pedicellati, solitarii, gemini, terni vel quini, in ramis paniculæ racemosim dispositi, albidi, virescenti- vel flavido-albi; **pedicellis basi bracteolatis, superne articulatis.***

Dracæna Draco; arborea apice ramosa, foliis sessilibus amplexicaulibus lineari-acuminatis acutissimis, paniculis terminalibus ramosis foliaceo-bracteatis, ramis ternis patentissimis, floribus fasciculatis, pedicellis medio articulatis.

Dracæna Draco. *Linn. Syst. Veget. p.* 275. *Willd. Sp. Pl. v.* 2. *p.* 155. *Roem. et Schult. Syst. Veget. v.* 7. p. 337. *Spreng. Syst. Veget. v.* 2. *p.* 92. *Berthel. in Nov. Act. Bonn. v.*13. *p.*773. *t.*35–39. *Kunth, Enum. Pl. v.*5. *p.*3. *Webb et Berthel. Hist. des Canaries, Atlas, Géographie Bot. 3me Ser. t.* 8.

Asparagus? Draco. *Linn. Sp. Pl. p.* 451.

The *Dragon's-blood Tree* is a plant that every one speaks of, which most have seen, if not the gigantic inhabitants of the Canaries, yet in our gardens at home; for there is scarcely a Botanic Garden in Europe which does not possess a plant of greater or less size; but a flowering plant is of very rare occurrence, save in tropical or subtropical regions. Our friend Dr. Mackay has had the good fortune to bring the plant to flower in

the stove of the Dublin College Botanic Garden, one, too, which he reared himself from seeds collected at Madeira, by the Right Honourable George Knox, in 1810. "After it had been grown in a pot," says Dr. Mackay, in the remarks he presented to the Meeting of the British Association at Edinburgh, 1850, "for ten years, it was planted out into a bed of earth in a large stove or hot-house. About three years ago it became too tall for the house; and, in order still to secure the plant for the collection, the following experiment, suggested by my intelligent first assistant, Mr. Bain, was made by him. The stem, which was about fifteen inches in diameter immediately under the leaves, and eighteen feet high, was, during six months, gradually cut across four feet above the root, about an inch deep at a time to prevent bleeding. The root and lower portion of the stem were then removed as being useless, and the upper portion of the stem suspended immediately above the former station of the plant. In the course of eight months, during which time it was kept perfectly dry, it threw out several thick aerial roots from the edge of the stem where it had been cut. It was then lowered into its former position, and had the stem and roots sunk four feet in dry sandy mould. This was done about a year and a half ago, and the plant, which is now in excellent health, has lately flowered, and is, I believe, the first that has done so in Great Britain or Ireland."

Our good friend did not fail to send us a flowering specimen and leaves: but the plates of this publication are most unsuited to receive anything like a fair sample of the full-sized leaves and inflorescence: so that we have hence thought it better to confine our figures chiefly to analysis, and occupy the rest of the plate with a copy taken from the "Atlas" of Messrs. Webb and Berthelot's 'History of the Canary Islands,' of the celebrated "Dragon Tree of Orotava" as it is usually called, of which the drawing was made in 1790, before the great injury done to the tree by the storm in 1819. In the latter state, an exceedingly beautiful large plate has been published in London by the same gentleman (Mr. Williams) who executed Mr. Webb's drawings. "It is now," says M. de Humboldt, in his celebrated Travels, "included within the precincts of the garden of M. Franchi, in the small town of Orotava, one of the most delicious spots in the world. In 1799, when we climbed the peak of Teneriffe, we found that this enormous vegetable was forty-five feet in circumference a little above the root. Sir George Staunton affirms that, at ten feet high, its diameter is twelve feet; its height was reckoned at from seventy to seventy-five feet." Some thirty years after Humboldt's visit, M. Berthelot (in 1819) took up his abode in the ruined chambers of *La Casa Franchi*, and gives the following

lively picture * of the then state of the gardens and their vegetation :—" Les jardins du Manoir, jadis entretenus avec luxe, et dont je n'ai rien dit encore, étaient livrés à eux-mêmes : depuis longtemps la nature en faisait tous les frais. Les haies de myrte, qu'on ne taillait plus, formaient des allées couvertes où venaient se refugier tous les merles des environs ; les orangers et les citronniers poussaient à plein vent ; les rosiers croissaient en buissons au milieu des orties et des ronces. Au bord d'une pièce d'eau, trois antiques cyprès et un palmier, qu'on apercevait de tous les points du vallon, complétaient l'aspect romantique de ce site à demi sauvage. Cependant, malgré les ravages du temps, ces jardins avaient conservé leur plus étonnante merveille : un dragonier s'élevait en face de mon logement, arbre étrange de forme, gigantesque de port, que la tempête avait frappé sans pouvoir abattre. Dix hommes pouvaient à peine embrasser son tronc. Ce cippe prodigieux offrait à l'intérieur une cavité profonde que les siècles avaient creusée ; une porte rustique donnait entrée dans cette grotte, dont la vôute, à moitié entamée, supportait encore un énorme branchage. De longues feuilles, aiguës comme des épées, couronnaient l'extrémité des rameaux ; et des blanches panicules, qui s'épanouissaient en automne, venaient jeter un manteau de fleurs sur ce dôme de verdure. Un jour, l'ouragan furieux ébranla la forêt aérienne : on entendit un épouvantable craquement ; puis tout-à-coup le tiers de la masse rameuse s'abbatit avec fracas et fit retentir la vallée. Un superbe laurier fut emporté dans cette débâcle, et tous les arbustes des alentours restèrent ensevelis sous des monceaux de ruines. La date de cet événement est inscrite sur une plate-forme en maçonnerie qu'on a bâtie au sommet du tronc pour recouvrir la crevasse et prévenir l'infiltration des eaux. Le colosse mutilé n'a rien perdu de son imposant aspect : inébranlable sur sa base et le front dans les nues, il poursuit le cours de sa longévité. Souvent j'allais m'asseoir au pied de l'arbre séculaire dont l'origine se perd dans la nuit des temps. Que de générations ont passé sous son ombre ! Les Guanches d'Orotapala (now Orotava) le vénérèrent comme un génie protecteur ; mais ce peuple de braves a subi son destin . . . depuis quatre cent ans il est anéanti, et le vieux dragonier, toujours de bout, brave encore les orages. Après la reddition de Téneriffe (1496) il servit de jalon aux soldats de l'Adelantado pour le tracé des lignes de partage, dans la distribution des terres conquises. Dessiné sous tous les aspects, décrit dans toutes les langues, le vétéran de la vallée a fait l'admiration des voyageurs mes devanciers. Un historien, métamorphosant cet arbre extraordinaire, en fit le dragon des Hes-

* Webb et Berthelot, Hist. Nat. des Canaries ; Sert. Miscell. ; Séjour à l'Orotava, p. 97.

pérides, gardien des pommes d'or; Nicolas Monard, examinant son fruit à la loupe, crut voir sous l'enveloppe l'image du monstre fabuleux; et les botanistes modernes, jugeant le colosse par l'embryon, l'ont classé dans la famille des Asperges."

India is given, as well as the Canaries, by most botanical writers, as the native country of the Dragon's-blood, but Dr. Roxburgh does not include it in his 'Flora Indica,' nor does Dr. Wallich consider it a native; and who can gainsay such authorities? The tree derives its name from a resinous exudation, known in commerce as "Dragon's-blood," and which appears to have formed a considerable branch of exportation in the early times of the conquest of these isles, but which has never wholly fallen into disuse. Masses of this resin, which have been found in the sepulchral caves of the Guanches, would lead to the suspicion that the substance was employed for embalming their dead.

Descr. A description of the *trunk* of this tree, as seen in our own stoves or greenhouses, even when, as at Kew, they have attained a height of twenty-three feet, with the entirely unbranched *stem* scarred by the transverse lines or scars of the fallen leaves, with a single tuft of leaves at the top, very much resembling a Yucca, would give no idea of the appearance the tree puts on in its native isles in its maturer age. The state just mentioned is considered by M. Berthelot as the "first age" or infancy, which lasts, in their native country, from twenty-five to thirty years. He speaks of two other periods, "of maturity or of reproduction;" and thirdly, the *age* or *period of decay*: "la durée des ces deux âges est incalculable." At the *second age*, the transverse cicatrices disappear, and the trunk is covered by layers which adhere together and increase gradually by the formation of new ones: hence the trunk sensibly increases in thickness, owing to the rapid formation of branches, and then commences the flowering period. "Parvenus à cette époque de leur perfection, les Dragoniers continuent à croître et semblent acquérir chaque année une vigueur nouvelle. Par l'effet de leur robuste organisation ils résistent aux vents les plus impétueux, bravent sur un sol volcanisé les rayons d'un soleil brûlant et toutes les intempéries de l'atmosphère. C'est ainsi que, forts des avantages que la nature leur a prodigué, ils poursuivent lentement la longue carrière de leur existence." In the *age* or *period of decay*, aerial roots appear, "les drageons parasites," and glandular excrescences in the interior of the trunk as large as Cocoanuts, described and figured by Berthelot (*l. c.* p. 785. t. 39).

The *leaves* attain a length of three feet and more, and are very glaucous, coriaceous, firm, straight, narrow sword-shaped or linear, pungently acuminated, broad, somewhat sheathing

at the base and contracted above the sheath. They vary much in breadth, from one to two inches, and Kunth enumerates four varieties depending on peculiarities of the foliage. *Panicles* from the leafy extremities of the branches, themselves leafy with foliaceous *bracts*: ultimate bracts minute. *Flowers* pedicelled, in clusters or fascicles, five or six from one point, easily caducous, if not fruit-bearing, owing to a joint near the middle of the pedicel, and the lower portion or articulation is swollen at the top and a little cup-shaped. *Sepals* pale yellowish or greenish white, oblong, obtuse, bearing the stamens at the base. *Anthers* oblong, two-celled. *Ovary* oval, glabrous, three-celled: *cells* with one ovule. *Style* as long as the ovary. *Stigma* three-lobed. *Fruit* a depressed-globose, yellow-green *berry*, with very thin pulp, one, two, or rarely three seeds coming to maturity. *Seeds* globose, pale brown. *W. J. H.*

Cult. This plant is recorded to have been introduced into this country before 1640, and examples of it have been known to attain a considerable height and age, but we are not aware of its ever having produced flowers except under the circumstances stated above. In Botanic Gardens this plant is generally placed in a house with Aloes, Agaves, and other succulent plants that thrive in a dry atmosphere and require very little water. For many years several specimens were kept in the old dry stove in the Royal Gardens, growing in large garden-pots. Their thick roots and the mould in the pots formed a compact ball, almost impervious to water, which at all times was but sparingly given them: under this treatment the plants grew and increased in height. In 1842, one of them, becoming too tall, was removed into a loftier house, adapted for the growth of tropical plants requiring a warm and moist air, and was shifted into a small tub. At that time it measured seventeen feet nine inches from the surface of the soil in the tub to the base of the lowest whorl of leaves; it is now twenty-three feet in height, having grown five feet four inches in eight years, being at the rate of eight inches annually: this, according to our recollection of the plant thirty years ago, must be at least double its rate of growth when under the dry system of treatment. A modification of the latter, however, we believe to be more in accordance with the circumstances of the plant in its native locality. The specimen figured, Dr. Mackay informs us, was raised from seed in 1810, and at the time it was cut down (about three years ago) it measured eighteen feet in height: this gives a growth of about five inches annually. From the above statements, it appears that this plant grows slowly or rapidly according to the degree of heat and moisture it receives; but when cultivated in a moist atmosphere, little or no water should be given to the roots. With respect to

the successful experiment of forming a new plant, as performed in the College Garden, Dublin, we have to observe, that many caulescent species of the family to which *Dracæna* belongs, emit roots from their stems, and readily form new plants when cut down; and we have an example of our tallest *Dracæna* emitting roots several feet above the ground, from a part of the stem that had been injured. *J. S.*

The chief figure on our plate represents, on a very reduced scale, the great *Dragon-Tree* of Orotava, as it appeared in 1790; copied from Webb and Berthelot's figure. Fig. 1. Portion of a leaf:—*natural size.* 2. Small portion of a panicle. 3. Flower. 4. Stamen. 5. Pistil:—*natural size.* 6. Transverse section of ovary. 8. Transverse section of a two-seeded berry. 9. Seed:—*magnified.*

Fitch, del et lith.

Reeve & Nichols, imp.

Tab. 4572.

EPIDENDRUM LINEARIFOLIUM.

Narrow-leaved Epidendrum.

Nat. Ord. Orchideæ.—Gynandria Monandria.

Gen. Char. Sepala patentia, subæqualia. *Petala* sepalis æqualia v. angustiora, rarius latiora, patentia v. reflexa. *Labellum* cum marginibus columnæ omnino v. parte connatum, limbo integro v. diviso, disco sæpius calloso, costato v. tuberculato ; nunc in calcar productum ovario accretum et cuniculum formans. *Columna* elongata ; clinandrio marginato, sæpe fimbriato. *Anthera* carnosa, 2–4-locularis. *Pollinia* 4, caudiculis totidem replicatis annexa.—Herbæ (*Americanæ*) *epiphytæ, caule nunc apice v. basi pseudo-bulboso, nunc elongato apice folioso.* Folia *carnosa, rarissime* venis *elevatis striata.* Flores *spicati, racemosi, corymbosi, v. paniculati, terminales v. laterales.*

Epidendrum *linearifolium* ; pseudo-bulbis ovatis lævibus cæspitosis, foliis binis lineari-elongatis obtusis, panicula elongata laxa gracili, sepalis petalisque lineari-spathulatis patentissimis, labelli purpureo-picti fere liberi trilobi lobis lateralibus oblongis reflexis, intermedio subamplo rotundato integerrimo margine undulato, disco bicostato, columna superne biaurita.

A native, probably, of Mexico. It was received at Kew as one of the collection of the late Mr. Clowes, but the name, if it had any, was effaced on the label. It does not appear to be anywhere described : but its affinity is doubtless with a groupe of *Epidendrum* which I have called *Encyclia*, and not far removed from *E. gracile*, Lindl. Bot. Reg. t. 1765, from the Bahamas ; differing, however, abundantly from it in the much more slender and graceful character of the whole plant, in the smaller and even (not corrugated) pseudo-bulbs, much narrower and longer leaves, and in the small lateral lobes of the labellum. The colour and markings of the flower are different. The lip here, and especially the lobes, are most beautifully veined with purple. Flowers in June.

Descr. *Pseudo-bulbs* scarcely exceeding an inch in length, clustered, ovate, quite even on the surface, the younger ones more or less sheathed with scales, bearing at their summit two very narrow linear *leaves*, 8–10 inches long, carinate, acute.

The *scape* rises from between the two leaves, and is a foot long, bearing a lax slender graceful *panicle* of from 12–14 *flowers*. *Sepals* and *petals* spreading horizontally, purple-brown, yellowish at the apex, very acute. *Lip* with its base united to the lower part and decurrent with the long column, the sides embracing and including the latter, three-lobed, yellowish-white, delicately lined and veined with purple; side lobes oblong, acute, reflexed; middle lobe large, rotundate, waved at the margin. *Column* yellow, with blood-red spots, biaurite in front near the summit. *Anther-case* white, with crimson spots. *W. J. H.*

Cult. *Epidendrum* was the common name originally applied to the plants now called Epiphytal Orchids, of which twenty-five species are recorded to have been introduced into the gardens of this country previous to the beginning of the present century. A few were known in Millar's time, for under the word *Epidendrum*, in his Dictionary, he states that these plants come from the West Indies, and that several kinds of soil had been tried for cultivating them, but without success; and he therefore considered it unnecessary to say more about them. There can be no doubt that the want of success in growing Orchids at that time was not entirely owing to improper soil, but rather to their not being placed in a suitable atmosphere. Even in our time, we remember seeing a very extensive collection of Brazilian Orchids potted in common soil, which in a short time all perished; but when we also recollect that they were placed within a foot of a hot brick flue, that the stunted appearance of the other plants in the house indicated a dry atmosphere, and that no shading from the sun was used, we cannot be surprised at the death of the "*Epidendrums.*" The name is now restricted to a genus which contains above 150 described species, the whole of which are natives of the West Indies and America, chiefly within or near the tropics. They vary much in size and aspect, some having showy flowers, while others are very inconspicuous and only of interest to the botanist. The species figured grows and flowers freely in the tropical Orchid-house, attached to a block of wood suspended from the roof of the house; it may also be grown in a shallow pot or pan, planted in turfy peat, which should be kept open with potsherds; and, like other small Orchids, it should be placed near the glass, shading it during bright sunshine. *J. S.*

Fig. 1. Column. 2. Labellum. 3. Pollen-masses :—*magnified.*

2.

Fitch, del et lith.

Reeve & Nichols, imp.

Tab. 4573.

ACACIA urophylla.

Pointed-leaved Acacia.

Nat. Ord. Leguminosæ.—Polygamia Polyandria.

Gen. Char. (*Vide supra*, Tab. 4306.)

Acacia (§ Armatæ) *urophylla*; glabra v. hispidula, ramulis angulatis, stipulis setaceo-spinescentibus, phyllodiis petiolatis dimidiato-ovatis lanceolatisve obliquis subulato-acuminatis undulatis margine superiore sæpius crenato binerviis v. furcato-3–4-nerviis transversim venosis reticulatisve, glandula prope basin magna, pedunculis simplicibus (v. breviter racemosis), capitulis paucifloris glabris. *Benth.*

Acacia urophylla. *Benth. in Bot. Reg.* 1841. *Misc. n.* 61. *et in Hook. Lond. Journ. of Bot. v.* 1. *p.* 329. *Lehm. Plant. Preiss. v.* 1. *p.* 8.

Acacia smilacifolia. *Fielding, Sertum Plantarum, t.* 3. (1843).

β. *glaberrima*; foliis pallidioribus, floribus magis luteis.

Would that all the species of the vast groupe of phyllodineous *Acaciæ* were as easily defined as this. The *phyllodia* are here of a very peculiar character, generally broad ovate, subfalcate, almost spinescently acuminated, with longitudinal and transverse nerves, as in *Smilax*, whence the appropriate name of Mr. Fielding. The plant was raised from seeds sent in 1843, by Mr. Drummond, from the Swan River Colony (Preiss says, about Canning's River and the Darling range of hills). It flowers in January and February.

Descr. A moderate-sized *shrub*, with angular branches, and, the young phyllodia especially, pubescenti-hirsute. *Phyllodia* obliquely ovate, slightly falcate (the edges vertical), acuminated into a slender setaceous or spinulose point, hairy in α, glabrous in our β, the upper edge obscurely crenate, the two surfaces marked with three nearly equidistant nerves, united by transverse ones, tapering at the base more or less gradually into a rather short footstalk, which bears a conspicuous *gland* at its summit above. *Stipules* two, minute, subulate, red, spinescent. *Peduncles* two to five from one axil, each much shorter than the leaf,

longer than the petiole, monocephalous. *Flowers* few, pale yellow, deeper coloured in β. *Calyx* and *corolla* each of four acute lobes. *Stamens* numerous: *anthers* subglobose. *Ovary* ovate, hirsute. *Style* filiform. *W. J. H.*

Cult. The genus *Acacia*, as now restricted, still contains about 400 described species, which are extensively diffused within the tropics of the Old and New World; they are also found in some extra-tropical countries, especially in Australia, which country alone contains more than one-half of the known species. This genus, in its normal or typical form, has conjugate and variously pinnated leaves, which character is common to all the species in their nascent or seedling state, and is permanent with about one-half in all stages of their existence; the other species soon lose their true leaves, their place being supplied by the petioles, which take various forms, assuming the appearance and performing the functions of leaves. In a few instances the true leaves may be seen borne on the apex of a broad leaf-like petiole; but the latter is readily known by its not having an upper and an under surface (as in true leaves), the two sides being vertical and uniform. With the exception of two or three species, the leafless groupe are all natives of Australia. They are found upon all the coasts, and equally diffused in the interior; and by their numbers they form a leading feature of the vegetation, some of the species by their glaucous and hoary aspect giving a peculiar character to the landscape, generally indicative of an arid country. As the seeds of *Acacias*, like those of most of the *Leguminosæ*, are not easily destroyed by long voyages, many of the species have from time to time been introduced into this country, more especially from the extra-tropical parts of Australia; as they are, also, of easy cultivation and many of them of robust growth, and very showy when in flower, they have become favourites in the greenhouse, and for planting in large conservatories. The species figured requires to be kept in the greenhouse: it grows freely in a mixture of light loam and peat, and is increased by cuttings treated in the usual way. *J. S.*

Fig. 1. Flower. 2. Pistil. 3. Small portion of a leaf:—*magnified*.

2.

Reeve & Nichols imp.

Tab. 4574.

HEBECLINIUM ianthinum.

Violet Hebeclinium.

Nat. Ord. Compositæ-Eupatoriaceæ.—Syngenesia Æqualis.

Gen. Char. Capitulum multiflorum. *Involucri* campanulati *squamæ* pluriseriales, laxe subimbricatæ, sæpe in appendicem subcoloratam productæ. *Receptaculum* elevatum, superne plano-convexum, pube brevi conferta hirsutum et ideo fere piloso-fimbrilliferum. *Achænia* angulata. *Pappus* 1-serialis, pilosus, scaber. —Herbæ *australi-Americanæ pubescentes.* Caules *teretes.* Folia *opposita, petiolata, cordata, acuminata, dentata.* Corymbi *terminales compositi, conferti.* Corollæ *albæ aut roseæ.*—*Genus affine* Eupatorio, *sed differt receptaculo villoso et involucri squamis sæpius appendiculatis.*

Hebeclinium *ianthinum*; ramis petiolis pedunculis pedicellisque pube ferruginea vestitis, foliis amplis longe petiolatis rhombeo-ovatis acutis (basi cuneata integerrima) grosse mucronato-serratis supra pube brevissima scabriusculis subtus pubescenti-canis, corymbo terminali composito polycephalo, capitulis ad apices ramulorum confertis ovatis multifloris ianthinis, achænio angulato glabro, involucri squamis exappendiculatis.

Conoclinium ianthinum. "*Morren, in Ghent Annals, May* 1849." *Henfrey, in Gardeners' Mag. of Bot. v.* 1. *p.* 185.

An Eupatoroid plant, and very near, it must be confessed, to true *Eupatorium.* Professor Morren has referred it to *Conoclinium* of De Candolle, but he, as well as Mr. Henfrey, point out some discrepancies, and the latter alludes to its affinity with *Hebeclinium.* In *Hebeclinium* native specimens of this species have long been in my herbarium, collected by Jurgensen and Linden (n. 463), not from St. Catherine, Brazil, as stated by the Belgian cultivator, but from Mexico, "près de Vera Cruz et Zalapa" (Linden). It assuredly agrees better with *Hebeclinium* than with *Conoclinium*, and it is a close congener with *Hebeclinium macrophyllum*, a common plant of Jamaica, and belongs to the same, or first, section of De Candolle. As a species, indeed, our plant differs abundantly in its large purple flowers and in the cuneate base to the leaf. It flowers in the winter

months with us, and is then very ornamental. We owe the possession of our plant to Messrs. Hendersons, St. John's Wood.

Descr. An herbaceous rather than a shrubby *plant*. *Stem* and *branches* terete, clothed with rusty down. *Leaves* opposite, on very long *petioles*, often a span long, ovate, but decidedly cuneate and entire at the base, very acute rather than acuminate, coarsely and often doubly serrated, the serratures mucronate. *Corymb* large, the capitula clustered at the ends of the branches. *Flowers* remarkable for the exceedingly long purple *styles*, which have, at first sight, almost the effect of a many-flowered ray. The corollas are also purple. *Achenium* angular. *Pappus* of few scabrous setæ. *W. J. H.*

Cult. A soft-wooded suffruticose plant, of easy cultivation. It may be grown in a pot, and flowers freely when not a foot high. Any kind of light open soil will suit it. It has hitherto been treated as a stove-plant; but, judging from its affinity to *Ageratum*, and from its present appearance, we think that if planted out in the open border in the month of May, it will grow luxuriantly during the summer months. It increases readily by cuttings, treated in the usual way. *J. S.*

Fig. 1. Flower. 2. Anther:—*magnified.*

Fitch del et lith

P.S.N.

Tab. 4575.

WIGANDIA Caracasana.

Caraccas Wigandia.

Nat. Ord. Hydroleaceæ.—Pentandria Digynia.

Gen. Char. Calyx 5-sepalus, persistens. *Corolla* infundibuliformis. *Stamina* exserta. *Styli* 2, *stigmatibus* depresso-capitatis. *Capsula* bi- (potius uni-) locularis, loculicido-bivalvis. *Placentæ* 4 (2), laminæformes, primum coadunatæ demum liberæ.—Herbæ *grandifoliæ, strigoso-hispidissimæ. Chois.*

Wigandia *Caracasana*; hirta, foliis elliptico-cordatis duplicato-crenatis dentibus acutiusculis utrinque hirto-tomentosis, spicis apice revolutis secundifloris, rachide villoso-pubescente, sepalis lineari-lanceolatis incano-tomentosis acutis, corollæ tubo brevi, staminibus basi ciliato-hirtis, capsula vix incano-pubescente.

Wigandia Caracasana. *H.B.K. Nov. Gen. et Sp. Am. v.* 3. *p.* 128. *Lindl. Bot. Reg. t.* 1966. *Roem. et Sch. Syst. Veget. v.* 6. *p.* 190. *Spreng. Syst. Veget. v.* 1. *p.* 866. *Choisy, in De Cand. Prodr. v.* 10. *t.* 84.

Native of the Caraccas, as the name implies. Introduced from Berlin to the English gardens. With us, it flowers in the stove in February, and makes a handsome appearance with its large pale violet flowers. Our plant is clearly the same as Dr. Lindley's, and Dr. Lindley's excellent figure is quoted under the *W. Caracasana* of Choisy, who had the opportunity of inspecting Humboldt's original specimens. But Dr. Lindley observes, "Planta culta in caldario orgyalis, a spontanea, quam coram habeo, diversa est foliis viridioribus, contextu laxiore, et aliquando costa venisque primariis hispidis, necnon floribus triplo majoribus." We find the same differences (save in the size of the flowers) between our cultivated plant and native specimens of what we believe to be specifically identical, from New Granada and from Trinidad. But it must be confessed that other species of *Wigandia* present great variations and intermediate gradations which render their claims to specific identity extremely doubtful.

Descr. *Stem* herbaceous, hirsute, every part, even when dry (save the flowers), green. *Leaves* alternate, five or six inches long, on rather long, hairy *petioles*, elliptical cordate, acute, sinuate and dentate at the margin, the teeth rather sharp,

pubescenti-hirsute on both sides, reticulated. *Panicle* or compound *raceme* terminal, branches patenti-hirsute, circinate, many-flowered. *Flowers* large, unilateral. *Pedicels* short. *Calyx* of five linear-lanceolate, hairy, erect *sepals*. *Corolla* pale violet-colour: the *tube* as short as the calyx, *limb* of five large, spreading, ovate, obtuse lobes, the sides a little reflexed. *Filaments* inserted near the base of the corolla. *Anthers* oblong, sagittate. *Ovary* oblong, one-celled, with two placentæ, a transverse section of each of which nearly represents the letter T, the transverse portions meeting in the centre; their edges chiefly bearing the numerous ovules. *Styles* two, exserted. *Stigmas* dilated, depressed. *W. J. H.*

Cult. A soft-wooded tropical plant, requiring the heat of the stove. A mixture of light loam, peat, and sand suits it, but care must be taken to have the pot well drained. It is readily increased by cuttings, planted in sand under a bell-glass, and plunged in bottom-heat; but, being of a soft nature, they must not receive much water till they have formed roots. *J. S.*

Fig. 1. Stamen. 2. Pistil. 3. Section of ovary :—*magnified*.

Fitch, del et lith.

Reeve & Nichols imp.

Tab. 4576.

CHYSIS AUREA; *var.* MACULATA.

Golden-flowered Chysis; spotted variety.

Nat. Ord. Orchideæ.—Gynandria Monandria.

Gen. Char. Sepala paulo connata, patula; lateralia pedi producto columnæ adnata et calcar simulantia. *Petala* sepalis conformia. *Labellum* trilobum, patulum, venis basi callosis. *Columna* marginata, canaliculata, mutica. *Anthera* subrotunda, opercularis, glabra. *Pollinia* 8, in laminam luteam semifusa, quatuor exterioribus tenuibus quatuor interiora crassiora abscondentibus. *Rostellum* laminatum, convexum.—Herbæ *epiphytæ, occidentales, ab arboribus pendulæ*; caulibus Cyrtopodii *depauperatis*, foliis *nervosis basi vaginantibus*, racemis *lateralibus multifloris. Lindl.*

Chysis *aurea*; bracteis parvis concavis ovario brevioribus, sepalis petalisque ovatis obtusis, labelli lobis lateralibus obtusis, intermedio majore carnoso bilobo hypochilio plicato, lamellis 5 carnosis subæqualibus parallelis basi pubescentibus et utrinque 3 aliis minoribus (potius venis elevatis), columna latissima carnosa cymbiformi antice pubescente. *Lindl.*

Chysis aurea. *Lindl. Bot. Reg. t.* 937. *Hook. Bot. Mag.* t. 3617.

β. sepalorum petalorumque parte superiore aureo-fusco tincta, labelli lobo medio purpureo-maculato.

Sent in January 1851 from the collection of Messrs. Lucombe and Pince, of the Exotic Nursery, Exeter. By them it was purchased at one of Mr. Stevens's sales of Columbian Orchideæ, in 1850, where it was entered in the catalogue as the "Red Bull's-mouth."

We were at first disposed to consider it a distinct species from *C. aurea, lævis*, or *bractescens*, but a further investigation led to the conclusion that it was rather a highly coloured variety of *C. aurea*, to which, indeed, *C. bractescens* is very nearly allied, nor do I find the chief distinction which Dr. Lindley lays stress upon, available; viz. that on the labellum of *C. aurea* there are five principal ridges, and three minor ones on each side, all downy and diverging, "while in *C. bractescens* there are five equal ridges all smooth and parallel." In our drawing of *C. bractescens*, now before us, the five ridges are all downy in their lower half, while in *C. aurea*, both *α* and *β*, the three lesser

lateral ridges appear rather a kind of venation, such as is seen in the middle lobe also. In *C. bractescens*, the bracteas are larger and very concave, and the flowers are larger, and the lateral lobes of the labellum are larger than in *C. aurea*. The flowers are very fragrant.

Descr. We have nothing to add to our description of *C. aurea* given at our Tab. 3617, save that in this variety the sepals and petals have their upper half occupied by a large orange-brown spot or blotch, and the middle lobe of the labellum is prettily spotted with purple. *W. J. H.*

Cult. This beautiful epiphyte requires the temperature of the tropical Orchid-house. It thrives in a shallow pot or pan, filled with turfy peat-soil, and well drained with potsherds. The soil should be raised in a rounded form above the margin of the pot, so as to have the plant elevated, and to allow any superfluous waterings to pass off freely, that the soil may not become saturated. In winter, care must be taken that the plant does not suffer from excess of atmospheric moisture; it is, therefore, advisable to remove it to a colder and drier house. *J. S.*

Fig. 1. Column and Lip. 2. Pollen-masses :—*magnified.*

Reeve & Nichols imp.

Tab. 4577.

MORMODES ATRO-PURPUREA.

Black-purple Mormodes.

Nat. Ord. Orchideæ,—Gynandria Monandria.

Gen. Char. (*Vide supra*, Tab. 4455.)

Mormodes *atro-purpurea*; pseudo-bulbis oblongis squamis amplis imbricatis pallidis fusco-marginatis vaginatis, foliis . . . , floribus pendulis unicoloribus, sepalis petalisque arcte reflexis ovato-lanceolatis marginibus revolutis, labelli late obcordati velutini in stipitem basi attenuati lateribus revolutis, **columna oblique torta breviter acuminata.**

At our Tab. 4455 we gave the very pretty and singular *Mormodes lentiginosa*, whose flowers are pale, freckled with dark purple. The blossoms of the present species are of a uniform dark purple or blood-colour, the sepals and petals wider, the lip much broader and velvety with short hairs. It was communicated in January 1851, by our friend J. Dillwyn Llewelyn, Esq., from his collection at Penllergare, having been purchased by that gentleman at one of the sales of plants of Mr. Warcewitz from Panama.

Descr. *Pseudo-bulbs* clustered, oblong, striated, the old ones entirely sheathed by large, membranaceous, pointed *scales*, of a pale straw-colour, edged with dark brown. The *leaves* we have not seen. *Scape* a foot high, rounded, articulated. *Flowers* rather distant, pendulous, of a nearly uniform dark purple-brown, or between chocolate and blood-colour. *Sepals* and *petals* nearly uniform, ovato-lanceolate, their sides reflexed. The *lip* porrected, velvety with short hairs, broadly obcordate, tapering below into a stipes, the sides singularly revolute. *Column* pale, purplish-brown, not half the length of the lip, with which it is nearly parallel, but it has an oblique twist; the apex short, acute. *W. J. H.*

Cult. This singular species of *Mormodes* requires the temperature of the warm Orchid-house. It will thrive if potted in

loose turfy peat-soil, in pots well drained. During its season of rest very little water must be given, and it is best to remove it to a cooler and drier situation, again replacing it in a warm and moist atmosphere when it begins to show symptoms of growth. In bright summer weather it should be shaded from the direct rays of the sun. *J. S.*

Reeve & Nichols, imp

Tab. 4578.

DOMBEYA mollis.

Soft-leaved Dombeya.

Nat. Ord. Byttneriaceæ.—Monadelphia Polyandria.

Gen. Char. (*Vide supra*, Tab. 4568.)

Dombeya *mollis*; arborea, ramulis pubescenti-tomentosis, foliis amplis molliter pubescentibus cordatis serratis trilobis lobis acuminatissimis rectis, stipulis ovatis acuminatis, pedunculis elongatis tomentosis apice dichotomis umbellatis, filamentis in tubum urceolatum unitis, petalis anguste lanceolatis falcato-flexuosis.

Astrapæa mollis, *Hortulan.*

The largest of our Dombeyas, attaining, in our Palm-stove, a height of thirty feet, with a large spreading head of *branches*. It is an undescribed species (though nearest perhaps to *D. triumfettæfolia*,* Bojer in Ann. Sc. Nat. vol. xviii. p. 191) and was received at Kew many years ago from France, under the name of *Astrapæa mollis*. The species is remarkable for its large, soft, and compactly tomentose leaves, and the dense capitate umbels of small rose-coloured flowers with narrow petals. It flowers in March, and the scent resembles that of Hawthorn.

Descr. A *tree*, much branched at the top, spreading; young *branches*, *petioles*, *leaves*, *peduncles*, and *calyces* everywhere clothed with dense stellated down, quite soft to the touch. *Leaves* on terete petioles, often a foot long, themselves nearly as long, cordate with a deep sinus at the base, three-lobed, the *lobes* very much acuminated and straight (not diverging), everywhere sharply serrated, five- to seven-nerved. *Stipules* moderately large, ovato-acuminate. *Peduncles* six to eight inches long, rather stout, erect, two or three times forked at the apex; each branch

* *D. triumfettæfolia*; "caule suffruticoso glabro, foliis petiolatis ovato-oblongis 5–7-nerviis utrinque stellato-hispidis lobis acuminatis, pedunculis axillaribus bifidis, floribus corymbosis albis."—It is singular if among Bojer's seven new species of *Dombeya*, described in the above work, this should not be included.

bearing a capitate umbel of pale rose-coloured *flowers*. *Calyx* of five, oblong, much acuminated *sepals*. *Petals* five, lanceolate, acuminate, falcate, but somewhat uncinate at the apex. *Filaments* of the stamens united into an urceolate tube. *Anthers* fifteen, oblong. *Sterile filaments* linear, subpetaloid, thrice as long as the fertile ones. *Ovary* globose, stellato-hirsute. *Style* with five linear *stigmas*. *W. J. H.*

Cult. This is an old inhabitant of the stoves in the Royal Gardens. Being a free and rude grower, specimens have several times attained a height beyond the accommodation afforded, but never produced flowers until, on being removed to the Palm-house, they had room to develope their wide-spreading branches. Being analogous in habit to *Dombeya viburnifolia* (Tab. 4508), it requires the same kind of treatment. *J. S.*

Fig. 1. Flowers; the petals only removed. 2. Petal. 3. Pistil:—*magnified.*

2.

Fitch del et lith

Reeve & Nichols, imp.

Tab. 4579.

RONDELETIA versicolor.

Changeable-flowered Rondeletia.

Nat. Ord. Rubiaceæ.—Pentandria Monogynia.

Gen. Char. Calycis tubus subglobosus, *limbus* 4–5-partitus, *lobis* oblongis linearibusve acutis persistentibus. *Corolla tubo* cylindrico vix apice subventricoso, limbo patente 4–5-lobo, lobis subrotundis. *Antheræ* 4–5, in apice tubi inclusæ, sessiles. *Stigma* bifidum. *Capsula* globosa, calyce coronata, bilocularis, ex apice dehiscens in valvulas 2 sæpius apice fissas unde sæpe 4-valvis videtur, nunc loculicido- rarius septicido-dehiscens. *Placentæ* centrales. *Semina* plurima, minima, ovato-angulata, sæpe 2 tantum in loculo maturescentia.—Arbusculæ *aut* frutices *omnes ex America.* Folia *plus minus petiolata aut subsessilia.* Stipulæ *deltoideæ aut lanceolato-lineares, utrinque solitariæ indivisæ, interdum intus hirsutæ.* Pedunculi *axillares sæpius trichotomi, interdum in paniculam* corymbosam *terminalem dispositi, rarius tri- imo uniflori. De Cand.*

Rondeletia *versicolor*; pentamera, ramulis foliisque junioribus sericeo-villosis, foliis petiolatis ovatis acuminatis basi obtusis subcordatis (siccitate subcoriaceis) supra glabriusculis subtus pubescenti-tomentosis, stipulis late ovatis patentibus pubescentibus, panicula trichotoma cymosa densa, floribus pubescentibus, calycis tubo globoso limbi dentibus 5 parvis, corollæ tubo gracili infundibuliformi limbi (tubi longitudine diametro brevioris) lobis rotundatis disco sericeis.

Sent by Mr. Seemann from Boqueta, Veraguas, Central America, to the Royal Gardens of Kew in 1838. A handsome stove shrub, especially when its copious cymes of dense flowers are in perfection (March and April), and which are remarkable for the play of colours: the tube is yellow; the limb in bud deep rose-colour, changing when they expand to pale rose and then to white, with a yellow disc, and having a two-lobed green spot in the centre from the colour of the stigmas, which protrude a little beyond the mouth. It does not correspond with any of the many species now described of this genus; its nearest affinity is perhaps with *R. cordata*, Benth. (*Rogeria*, Planch. and Henfrey) from Guatemala, but that is nearly glabrous, and has sessile leaves, broad and cordate at the base.

Descr. A moderate-sized *shrub*, with "very bitter bark."

Branches obscurely four-sided, but compressed, younger ones and young leaves quite silky and shining. *Leaves* large, deep green, soft and submembranaceous when fresh, more hard and almost coriaceous when dry, ovate, acuminate, very obtuse or subcordate at the base, above in the adult foliage glabrous or nearly so, beneath and on the *petioles* (half an inch long) pubescenti-tomentose, paler in colour, veins pinnated, prominent, beneath, a good deal reticulated, the reticulation most distinct in the dry state. *Stipules* deciduous from the older leaves, broad ovate, spreading, membranaceo-herbaceous, downy. *Panicle* downy, trichotomously divided and bearing numerous flowers, so as to form a more or less dense *cyme*, everywhere very downy, even the outside of the corollas. *Calyx-tube* small, globose: teeth five, small. *Corolla* hypocrateriform; the *limb* of five, spreading, rather wavy lobes, silky in the disc. *Stamens* quite included. *Style* a little exserted. *Stigma* two-lobed. *W. J. H.*

Cult. This is a tropical evergreen shrub, flowering freely when not more than two feet high. It may be grown in a mixture of light loam and leaf-mould, or peat containing a portion of sand, well drained with potsherds. It requires a warm and moist, close atmosphere, and will grow more vigorously if placed in bottom-heat. Being an erect grower, it is desirable to stop the leading shoot, in order to form a bushy plant. It is readily increased by cuttings planted under a bell-glass and placed in bottom-heat. *J. S.*

Fig. 1. Flower. 2. Pistil:—*magnified.*

1.

2.

3.

4.

5.

Fitch, del et lith.

Reeve & Nichols imp

Tab. 4580.

PERSEA gratissima.

Avocado, or Alligator Pear.

Nat. Ord. Lauraceæ.—Enneandria Monogynia.

Gen. Char. Hermaphroditæ (paucæ diclines). *Perianthium* profunde sexpartitum, subæquale vel inæquale, magis minusve pubescens, persistens, demum ad basin usque evanescens. *Stamina* fertilia novem triplici serie, quorum tria interiora glandulis binis globosis ad basin stipata: *filamenta* filiformia, villosa; *antheræ* oblongæ, quadrilocellatæ, locellis oblongis inæqualibus, sex exteriorum anticis, trium interiorum retro spectantibus. *Staminodia* tria, capitulo distincto cordato-triangulari. *Stigma* discoideo-dilatatum. *Bacca* pedicello magis minusve incrassato subcarnoso perianthio non mutato coriaceo aut chartaceo patente coronato insidens, eoque denique destructo pedicellum omnino nudum coronans. —Inflorescentia *paniculata aut thyrsoidea, in quibusdam depauperata et pauciflora, e squamarum gemmæ axillaris aut terminalis fugacium axillis*, ramulis *subumbelliforis minute bracteolatis.*

Persea *gratissima*; foliis ovato-oblongis obovatisve utrinque acutiusculis subtus reticulatis pubescentibus novemcostatis glaucis, perianthii laciniis subæqualibus oblongis, ovario glabriusculo, bacca pyriformi grandi. *Nees.*

Persea gratissima, *Gærtn. de Fruct. v.* 3. *p.* 222. *Spreng. Syst. Veget. v.* 2. *p.* 268. *Nees. Laurin. p.* 128. *Lindl. Bot. Reg. t.* 1258.

Laurus Persea. *Linn. Sp. Pl. p.* 529. *Willd. Sp. Pl. v.* 2. *p.* 480. *Dict. Sc. Nat. v.* 25. *p.* 342, *cum ic. Tussac, Fl. des Antilles, v.* 2. *p.* 14. *t.* 3.

Prunifera arbor fructu maximo pyriformi, *Sloane, Jam. v.* 2. p. 132. *t.* 222. *f.* 2.

The "Avocado," or "Alligator Pear," yields a fruit never, that I am aware, known to be produced in Europe; nor am I aware that it has ever flowered in our stoves save at Syon and Kew. In the West Indies it is highly valued, and cultivated, and in tropical America generally. It is presumed to be an aboriginal of these countries; though some say imported to the islands from the South American continent. Why called *Alligator Pear* is not very evident. Perhaps the first word is a corruption of *Aguacate*, one of the names by which, according to Ulloa, it is known in Lima. The fruit is pear-shaped, yellow or brownish-green, often tinged with deep purple. Between the skin and the hard seed is a pale butyraceous substance, interspersed with greenish veins, and this is much eaten by all classes of people;

its taste somewhat resembling butter or marrow, and hence is called the "vegetable marrow:" and this is so rich and mild that most people make use of some spice or pungent substance to give it poignancy: and wine, sugar, lime-juice, but mostly pepper and salt, are used. However excellent when ripe, the *Avocado* is very dangerous if pulled and eaten before maturity; being known to produce fever and dysentery. "If you take the stone of the seed," says Barham, "and write upon a white wall, the letters will turn as red as blood, and never go out till the wall is white-washed again, and then with difficulty."

Descr. This *tree* attains a moderate size, with a straight *trunk* and rough *bark*, handsome in full leaf. *Leaves* alternate, deciduous in our stove (and when bare of leaves or nearly so, in the present instance in February, is the season when it bore flowers), four to six inches long, ovate or oval or oblongo-obovate, with a short acumen, moderately tapering below into a *footstalk* about three-fourths of an inch long; the substance is between chartaceous and coriaceous, pinnately veined, glabrous above, more or less downy beneath, the margin quite entire. Clusters of *flowers* from the axils of the upper leaves or of the cicatrices of the leaves, peduncled. *Pedicels* short. *Perianth* rather small, green, downy, sexpartite: *segments* oval, spreading. *Stamens* nine, nearly as long as the calyx: *filaments* woolly; *anthers* four-celled. The inner stamens have two capitate *glands* at the base of each. *Staminodia* three, resembling abortive stamens. *Ovary* downy, tapering into the style. *Stigma* obtuse. *Fruit* the size and shape of an ordinary pear, very pulpy, containing one large seed in the soft butyraceous pulp, ovate, its integument crustaceous. *Albumen* none. *Embryo* conform to the seed. *Cotyledons* very large. *W. J. H.*

Cult. The Alligator Pear is extensively cultivated in the West Indies, especially in Jamaica. It does not appear to require any peculiar soil; the specimens imported we have observed to have been growing in earth of a stiff clayey nature. It needs to be grown in a warm and moist stove: it grows freely in light loam, but care must be taken to have it well drained and not to overwater it, particularly in winter, as the roots, being of a succulent nature, are easily injured by any great and prolonged excess of moisture, especially during the period when the plant is not in an active state of growth; even in its state of greatest vigour it takes up water very sparingly. It is increased by cuttings, treated in the usual way. *J. S.*

Fig. 1. Flower. 2. Stamen with glands, and a staminodium. 3. Pistil:—*magnified*. 4. Fruit (taken from Gærtner, and coloured from Tussac):—*natural size*. 5. Transverse section of the same, showing the seed:—*natural size*.

Fitch del et lith.

Tab. 4581.

HELLEBORUS ATRO-RUBENS.

Dark-purple-flowered Hellebore.

Nat. Ord. Ranunculaceæ.—Polyandria Pentagynia.

Gen. Char. Calyx persistens, 5-sepalus, sepalis subrotundis obtusis magnis sæpe viridibus. *Petala* 8–10, brevissima, tubulata, inferne angustiora, nectarifera. *Stamina* 30–60. *Ovaria* 3–10. *Stigmata* terminalia orbiculata. *Capsula* coriacea. *Semina* duplici serie disposita, elliptica, umbilicata. *De Cand.*

Helleborus *atro-rubens*; foliis radicalibus glaberrimis pedatisectis subtus pallidioribus nitidis, caulinis subsessilibus pinnatipartitis, caule subangulato bifide ramoso, sepalis subrotundis coloratis. *De Cand.*

Helleborus atro-rubens. *Waldst. et Kit. Pl. Rar. Hung. v.* 3. *p.* 301. *t.* 271. *De Cand. Prodr. v.* 1. *p.* 47. *Spreng. Syst. Veget. v.* 2. *p.* 659. *Reichenb. Ic. Fl. Germ. t.* 110.

A really handsome and hardy herbaceous flowering plant, blossoming when flowers are more especially welcome visitors, in February and March. The blossoms are large, spreading, at first rather a dark purple (hardly dark enough to justify the name *atro-rubens*), gradually changing to green as the fruit advances to maturity. It inhabits woods and bushy places in the mountain districts of Croatia, and is especially abundant about Korenicz.

Descr. *Root* a branched tuber or cormus, throwing down very numerous long *fibres*. *Stem* erect, herbaceous, dichotomously branched, glabrous, obsoletely angular. *Root-leaves* coming to perfection after the flowers, pedate, shining, the lobes lanceolate, reticulated, finely serrated, shining, paler beneath. *Stem-leaves* with a sheathing base, almost sessile, less divided: uppermost ones or *bracteas* at length lanceolate, undivided. *Peduncles* mostly terminal and two-flowered. *Sepals* broad ovate, almost rotundate, spreading, dull but rather dark red-purple, persistent and changing to dull pale brownish-green. *Petals* wedge-shaped, a short compressed tube, open at the mouth. *Stamens*

numerous, yellow. *Pistils* five. *Ovaries* tapering into styles as long as the stamens. *Stigma* clavate, hairy. *W. J. H.*

Cult. A hardy, herbaceous, early-flowering plant, growing freely in the open ground in any kind of garden soil, and readily increased by seeds or by division of the roots; the latter should be done in autumn or early in the spring. *J. S.*

Fig. 1. Petal (nectary of Linnæus). 2. Pistils:—*magnified.*

Fitch del et lith.

Reeve & Nichols imp.

Tab. 4582.

CANTUA BUXIFOLIA.

Box-leaved Cantua.

Nat. Ord. Polemoniaceæ.—Pentandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4386.)

Cantua *buxifolia*; foliis subfasciculatis oblongis aut obovatis acutis v. obtusis basi cuneatis integerrimis v. inciso-paucidentatis glabris vel pubescentibus, corymbis laxis, calyce tubuloso pubescente 5-dentato corolla triplo quadruplove breviore, corollæ tubo elongato strictiusculo limbo patente, staminibus subexsertis.

Cantua buxifolia. *Lam. Dict. v.* 1. *p.* 603. *Illustr. v.* 1. *p.* 106. *f.* 2. *Benth. in De Cand. Prodr. v.* 9. *p.* 321. *Juss. in Ann. du Mus. v.* 3. *p.* 118. *t.* 8.

Cantua ovata. *Cav. Ic. v.* 4. *p.* 43. *t.* 363 (foliis glabris).

Cantua tomentosa. *Cav. Ic. v.* 4. *p.* 43. *t.* 364 (foliis pubescentibus).

Cantua uniflora. *Pers. Syn. Pl. v.* 1. *p.* 187.

Periphragmos dependens. *Ruiz et Pav. Fl. Chil. et Peruv. v.* 2. *p.* 18. *t.* 133.

Periphragmos uniflorus. *Ruiz et Pav. Fl. Chil. et Peruv. v.* 2. *p.* 18.

When we spoke of this fine *Cantua* * (v. under *Cantua pyrifolia*, Tab. 4386) as producing flowers "full four inches long, and deep rose-coloured," we took our idea of colour from the dried specimens. Handsome as they are, with their copious large blossoms, they are far exceeded by the living plant, now happily in cultivation and flowering with Messrs. Veitch of Exeter. The corollas are almost crimson, the tube marked with longitudinal yellowish streaks. It will be difficult anywhere to find a more truly ornamental flowering shrub. It is a native of the Peruvian Andes. Our drawing was made in April 1850. Well may Ruiz and Pavon speak of it as "frutex, in flore speciosa:" and no wonder that the Peruvian Indians, as the same authors tell us, adorn their chambers on feast-days with the gay blossom of this species. The ancient Indians called it the *Magic-tree*. Some of our native specimens have almost white flowers.

Descr. A very much branched *shrub*; the *branches* more or

* *Canta* is the Peruvian name of this plant.

less downy. *Leaves* very variable, generally oblong-obovate, acute, tapering at the base, entire or sinuato-serrate, downy or glabrous. *Flowers* in a sort of leafy terminal corymb, drooping, very handsome. *Calyx* tubular, five-toothed, pale, membranous, with dark green streaks. *Corolla* hypocrateriform: *tube* very long, reddish-yellow, streaked with darker red; *limb* of five spreading, obcordate, red lobes. *Stamens* moderately exserted: *anthers* dark purple. *Ovary* seated on a fleshy *annulus*, or ring. *Style* longer than the stamens. *Stigma* trifid. *W. J. H.*

Cult. An elegant flowering, branching shrub, of easy cultivation, and capable of being trained into a neat bushy form. It proves to be a hardy greenhouse plant, and will thrive if potted in a mixture of light loam and peat-soil containing a portion of sand. It has not been long enough under our notice to enable us to judge of its hardiness, but, from its appearance and manner of growth, we believe it will grow freely in the open air during summer, if planted in a warm sheltered situation. Mr. Veitch informs us that with some slight protection it has withstood the two last winters in the open air, in Devonshire; we may therefore infer that cultivated either as a pot or outdoor plant, it will succeed by treating it in the same way as the Fuchsia. It is readily propagated by cuttings treated in the usual way. *J. S.*

Fig. 1. Pistil:—*magnified.*

Fitch. del et lith.

Reeve & Nichols, imp.

Tab. 4583.

FRANCISCEA calycina.

Large-calyxed Franciscea.

Nat. Ord. Scrophularineæ.—Didynamia Angiospermia.

Gen. Char. (*Vide supra*, Tab. 4189.)

Franciscea *calycina*; foliis obovato-oblongis ellipticisve vix acuminatis subcoriaceis cauleque glaberrimis vel in nervo medio subtus hirtellis, cymis 2–4-floris, calyce amplo tubuloso inflato glabro, corollæ tubo calycem breviter superante.

Brunsfelsia calycina. *Benth. in De Cand. Prodr. v.* 10. *p.* 199.

Besleria inodora. *Vellozi, Fl. Flum.* 6. *t.* 81.

Franciscea confertiflora. *Moore, Gard. Mag. of Bot. v.* 3. *p.* 73.

We continue the genus *Franciscea*, as sanctioned by Mr. Miers, in the fifth volume, new series, of 'Annals of Natural History,' for the blue-flowered species of *Brunsfelsia*, though we fear Mr. Bentham's views of the unsoundness of the generic distinction are too true. We find the present plant figured and described by Mr. Henfrey in the 'Magazine of Botany,' under the name of *F. confertiflora*, and the only synonym given is the *Brunsfelsia confertiflora* of Mr. Bentham, a species with which we are familiar, and of which there exists a splendid figure in Pohl's 'Plantarum Brasiliarum Icones:' but the figure and description are totally at variance with our plant. It is unquestionably the *F.* (*Brunsfelsia*) *calycina* of Bentham, figured, characteristically enough, in the 'Flora Fluminensis,' and well distinguished by the large inflated calyx and other characters. As we are indebted for our plant to Messrs. Lucombe, Pince, and Co., Exeter Nursery, who received it from Belgium, we presume that the Belgian horticulturists are answerable for anything wrong in the name, though that is not implied in the

'Magazine of Botany.'* It is a most lovely species, and must soon be a great favourite with cultivators. Our garden is further indebted for a flowering plant to Messrs. Henderson, Pine Apple Place. It forms a compact bush, blossoming readily when eighteen inches high: and, like other real *Francisceas*, the flowers are at first violet-blue, then white, or nearly so.

Descr. A moderate-sized *shrub*, with terete, glabrous branches and copious evergreen foliage. *Leaves* alternate, on very short *footstalks*, nearly elliptical, entire, obtuse at the base, acute, or shortly acuminated at the point, glabrous, or with a slight degree of hairiness on the midrib beneath. *Cymes* few-flowered, generally terminal. *Pedicels* thickened, as long as the calyx. *Calyx* large, elongated, tubular and inflated, glabrous, five-toothed at the apex. *Corolla* large, rich purple, with a white ring round the mouth of the tube, soon changing to a pale purple, and then almost to white. *Tube* curved downwards, not much longer than the calyx: *limb* oblique with regard to the tube, more than two inches across, of five, broadly obovato-rotundate, horizontally spreading and waved segments. *Stamens* and *style* quite included. *W. J. H.*

Cult. A native of Brazil, and requiring to be grown in a warm stove. It forms a neat evergreen bushy shrub, and grows freely in a soil composed of about equal parts of loam, peat, and leaf-mould, with a small portion of sand. As the production of fine heads of flowers depends upon inducing a vigorous growth, young plants should be placed in bottom-heat, and shifted into larger pots as they increase in size and the pots become filled with roots. The pots must be well drained, and care must be taken not to shift the plants into pots of too large a size at once; for the new soil is apt to become sodden by the watering necessary for the supply of the roots. When this happens, it is best at once to remove the soil and repot the plant, using more caution in watering afterwards. All the species of *Franciscea* readily increase by cuttings, planted in sand under a bell-glass, and plunged in bottom-heat. *J. S.*

* This is probably the plant alluded to in an article on the 'Culture of Francisceas,' in a recent number of the 'Gardener's Chronicle,' by M. Jungh, of Brussels. The *F. confertiflora* is there said "to be *discovered* by M. Libon, our collector, on the summit of Mount Conbaton, five leagues from Sanctos, Province of St. Paul, Brazil. A plant was sent to Messrs. Low, Clapton, and from them it has found its way into the gardens of English amateurs." Another *Franciscea* is there spoken of under the name of *F. eximia*, perhaps with as much right to that name as the Belgian *F. confertiflora*.

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Reeve & Nichols imp

Tab. 4584.

WALLICHIA DENSIFLORA.

Dense-flowered Wallichia.

Nat. Ord. Palmaceæ.—Monœcia Hexandria.

Gen. Char. Wallichia, *Roxb.*—*Flores* in caudicis multicipitis diversis spadicibus (polygamo-) monoici (aut polygamo-dioici, *Griff.*). *Spathæ* plures, pedunculaneæ, incompletæ, distichæ. *Spadices* deorsum evoluti, terminales et laterales, axe post omnium, quos ferebat, evolutionem moriente.—Masc. flores inferiores per paria dispositi, cum vel absque fœminei rudimento intra 2 bracteolas conchæformes delitescente. *Calyx* monophyllus, tridenticulatus trilobusve, aut triphyllus, sepalis distinctis imbricatis. *Petala* 3, valvata. *Stamina* 6 aut indefinita, *antheris* linearibus. *Rudimentum pistilli* nullum.—Fœm. intra bracteas 2 conchæformes, solitarii aut pari masculorum effœtorum stipati (raro excessu hermaphroditi, staminibus 3, *Griff.*). *Calyx* et *corolla* 3-partita. *Rudimenta staminum* nulla aut 3. *Ovarium* 2- raro 3-loculare, ovulis adscendentibus. *Stigmata* 2 vel 3, brevia, sessilia. *Bacca* exsucca, 2- raro 1- vel 3-sperma. *Albumen* æquabile, solidum, cartilagineum. *Embryo* dorsalis.—Palmæ *humiles, multicipite cæspitosæ.* Caudices *aut subnulli aut arundinacei, breves, exhaustis spadicibus emorientes.* Frondes *in subacaulibus terminales, in caudescentibus quoque laterales, pinnatæ,* pinnis *cuneatis, antice varie sinuato-excisis lobatisve et eroso-denticulatis, multinerviis subtus albidis crassiusculis.* Spadices *laterales, axillares, ramosi vel simplices, intra spathas persistentes.* Flores *albi vel ochroleuci,* fœminei *viridi-purpurei.* Baccæ *olivæformes, purpureæ aut albidæ, succo ob rhaphidum copiam acri pruriente. Mart.*

Wallichia (Harina) *densiflora*; subacaulis, pinnis subtus albidis imis binatim fasciculatis reliquis solitariis lineari-oblongis basi breviter cuneatis integerrimis cæterum sinuoso-lobatis dentatisque ut plurimum eroso-serratis obtuse acuminatis, florum fœm. densi (div. $\frac{3}{8}$) dispositorum bractea obliterata, alabastro globoso, corollæ segmentis obtusis depressis ovario brevioribus. *Mart.*

Wallichia densiflora. *Mart. Palm. v.* 1. *p.* 189. *et Suppl. p.* 190.

Wallichia oblongifolia. *Griff. in Calc. Journ. v.* 5. *p.* 486.

A native of Assam, where it was detected by Wallich, Jenkins, and Masters, according to Martius; Griffith states that the Seharampore Garden collectors found it near Darjeeling in Sikkim-Himalaya. Dr. Hooker remarks, it is common in damp forests at the foot of the Eastern Himalaya, extending at least as far west as Kamaon, where Dr. Thomson found it at an elevation of

about 2,000 feet above the level of the sea. It is a very elegant Palm, and very beautiful when in fructification. The male and female spadices appear on the same plant, and arise from among a tuft of strong coarse fibres: the former enveloped in large imbricated spathas of a dark purple, streaked with yellow: these separate, and then a dense cluster of male spadices appear, of a nearly white colour. The male spadix is a compound spike, with violet-coloured ovaries. Such a plant is well suited to commemorate Dr. Wallich's labours in the field of science. His extended knowledge and his splendid works on Indian Botany, his liberal contributions to Kew and to every celebrated garden in Europe and the Colonies, and his generous and encouraging bearing to every student of plants, justly entitle him to a name among the "Princes of the Vegetable Kingdom:" a name, too, given by his predecessor in the Directorship of the Calcutta Garden, Dr. Roxburgh.

In as few words as we can, we must show the right that Roxburgh's plant * has to the name *Wallichia*, in preference to *Wallichia* of other botanists who have delighted to honour our friend by a like compliment. Though the Palm had been long thus named by Dr. Roxburgh, it was not published till the appearance of the third volume of the 'Plants of Coromandel,' under the direction of Robert Brown, Esq., in 1821.

In 1824, Dr. Hamilton published this identical Palm under the name of *Harina* (a name having, probably, some reference to *a deer*), in his Commentary on the *Hortus Amboinensis* inserted in the fifth volume of the Transactions of the Wernerian Society of Natural History. In 1824, also, the late Professor De Candolle dedicated a Byttneriaceous genus to Dr. Wallich, in his 'Prodromus Syst. Natural. Plantar.' vol. i.; but among errata, in the very last line of the volume, p. 740, he says, in explanation, though quite mistakingly referring to HIS *Wallichia*, "*non Roxb. Cor., cujus* Wallichia *videtur* Caryotæ *species.*"

In that part of the lithographic catalogue of the E. I. Company's Herbarium published in 1829, Dr. Wallich very properly altered De Candolle's *Wallichia* to *Microchlæna*, since there was already the good genus *Wallichia* of Roxburgh, established three years before De Candolle's work came out.

Wallichia of W. Jack's MSS., mentioned in Dr. Carey's edition of Roxburgh's 'Flora Indica,' vol. ii. p. 574, published in

* In fact, Roxburgh himself had originally described the Palm in question under the name of *Wrightia*, but afterwards adopted the name *Wallichia*, on the former being applied to an Apocyneous plant by R. Brown, Esq., in 1811. But the name *Wrightia* is still retained for the Palm in Roxburgh's posthumous 'Flora Indica,' published very nearly thirty years after his death.

1824, (among additions and corrections) is Dr. Wallich's *Urophyllum* of the same volume.

Wallichia of Reinwardt, in Blume's Hort. Buctenzoorg., published in 1823, p. 11 et p. 57, is *Axanthes* of Blume, Bijdr.

Wallichia, Schumacher, MSS., is noticed by Hornemann in the 'Danish Literary Gazette,' no. 16, for 1846, p. 247. (It is one of Thonning's Guinea plants.)

The late Mr. W. Griffith has very properly adopted Roxburgh's *Wallichia* in his account of the genus inserted in the 'Calcutta Journal of Natural History,' vol. v. p. 482, 1845. And in the work on Palms by Von Martius, vol. iii. p. 315, in the *editio posterior* added to it in 1849, that author restores the name *Wallichia* (for *Harina*, which he had given in a previous volume of that magnificent work); subdividing *Wallichia* into two sections, namely, *Harina* and *Ovania*. *W. J. H.*

Cult. It is seldom that we have an opportunity of offering remarks on the cultivation of Palms: this may in part be attributed to the want of show in their flowers, and the general loftiness of growth of the majority of the family. But the species figured may be viewed as an exception, for it is not only a dwarf or stemless Palm, but its large bunch of male flowers is conspicuous on account of its singular-coloured spatha. Being a native of India, it requires the heat of a tropical stove, and grows freely in any kind of light garden-soil not retentive of water. The plant from which the drawing was made was introduced into the Royal Gardens some years ago, being then a small plant. As it increased in size and filled the pot with roots, it was duly shifted into larger pots, and ultimately into a plant-box two feet square, where it flowered, in the Palm-house. Although it produced both sexes of flowers, it did not, however, perfect its seeds. It may be increased by separating the suckers, but this must be done gradually, so as to allow the suckers time to have sufficient roots before they are quite separated from the plant. *J. S.*

Tab. 4584. Flowering plant:—*much reduced.* Fig. 1. Spathas of male flower before expansion:—*natural size.* 2. Male flower and bud:—*magnified.* 3. Spike of female flowers forming fruit:—*natural size.* 4. Immature fruit:—*magnified.* 5. Transverse section of ditto:—*magnified.*

Reeve & Nichols, imp.

Tab. 4585.

RANUNCULUS SPICATUS.

Spike-fruited Crowfoot.

Nat. Ord. Ranunculaceæ.—Polyandria Polygynia.

Gen. Char. *Calyx* 5-sepalus, sepalis basi non solutis deciduis. *Petala* 5, rarius 10, intus basi squamula foveolari nectarifera instructa. *Stamina* ovariaque plurima; *caryopsides* ovatæ, subcompressæ, in mucronem aut cornu semine vix longius desinentes, læves, striatæ, aut tuberculatæ, in capitulum globosum cylindraceumve dispositæ. *De Cand.*

Ranunculus (§ Ranunculastrum) *spicatus*; foliis subhirsutis, radicalibus petiolatis orbiculatis trilobis imis 5-lobis dentatis, summis 3-partitis lobis integris linearibus, caule erecto paucifloro, calyce patente, carpellorum spica elongata cylindrica.

Ranunculus spicatus. *Desf. Fl. Atlant. v.* 1. *p.* 438. *t.* 115. *De Cand. Prodr. v.* 1. *p.* 29. *Spreng. Syst. Veget. v.* 2. *p.* 646.

Ranunculus Olyssiponensis. *Pers. Syn. Pl. v.* 2. *p.* 106.

R. Lusitanicus, grumosa radice, &c. *Tourn. Institut.* 286.

In the too great admiration of tropical botany, the hardy herbaceous plants of cooler regions are often lost sight of. The present *Ranunculus* has a place probably in few gardens, yet would prove an ornament to any, with its large showy and peculiarly glossy bright flowers, which moreover appear as early as April. It was first detected and described by Desfontaines as a native of Algiers, where it appears to be very common on the hills. We possess specimens also from Gibraltar, gathered by our friend Dr. Lemann. Like other species of Crowfoot, it is liable to vary in size and in the outline of its leaves: but our figure well represents the ordinary appearance of the species. The specific name is best understood at a later period, when the receptacle of capsules runs out in a long cylindrical spike.

Descr. *Root* grumose, consisting of a dense cluster of fusiform fleshy *fibres* or *tubers* mixed with many capillary roots. *Stem* a foot or more high (less in its wild state), hirsute with short spreading soft hairs. *Leaves* more or less hairy: the lower ones

on long *petioles*, reniformi-orbicular, three- the lowermost five-lobed; *lobes* cuneate, generally again three-lobed and incised or toothed; upper ones nearly sessile, wedge-shaped, deeply three-lobed and incised, the *lobes* linear-cuneate. *Flowers* one to six upon a stem, on hairy, terete *peduncles*. *Calyx* of five ovate-oblong spreading hairy herbaceous *sepals*. *Corolla* two inches broad, in cultivation, of five, large, oblong, very glossy yellow spreading *petals*, with flabelliform, orange-coloured spots at the base. *Stamens* numerous, surrounding an oblong head of young carpels, which eventually lengthens into a narrow cylindrical spike. *W. J. H.*

Cult. A hardy, herbaceous, perennial plant, growing freely in any kind of garden-soil. It is readily increased by division of the roots or by seeds: *J. S.*

Fig. 1. Pistil:—*magnified*.

4586.

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Tab. 4586.

IXORA javanica.

Javanese Ixora.

Nat. Ord. Rubiaceæ.—Tetrandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4325.)

Ixora *Javanica*; foliis breviter petiolatis ovato-oblongis coriaceo-membranaceis brevi-acuminatis glabris basi acutis, stipulis e lata basi connata longe cuspidatis, corymbo longe pedunculato trichotomo, calycis basi bibracteolati laciniis rotundatis brevibus erectis, corollæ tubo filiformi sesquiunciali, limbi lobis obovato-rotundatis.

Ixora Javanica, *De Cand. Prodr. v.* 4. *p.* 487. *Walpers, Annal. Bot. v.* 1. *p.* 373.

Pavetta Javanica, *Blume, Bijdr. Fl. p.* 949.

From the collection of Messrs. Rollison, Tooting, who imported this very charming species of *Ixora* from Java, and with whom it blossomed in March 1851. It is handsome in the rich coral colour of the branches, in the full green of its copious foliage, and in the large corymbs of orange-scarlet flowers. The *I. Javanica* of Paxton, Mag. of Bot. v. 14. p. 265, is very different from this, and not Blume's plant.

Descr. A *shrub*, glabrous in every part, with compact *branches*, which are rounded, and the younger ones at least of a rich coral colour. *Leaves* four to five or even six inches long, between coriaceous and membranaceous, ovate-oblong, acute or acuminate, entire, penninerved, and acute or more or less attenuated at the base, where it gradually passes into a short *petiole*, not a quarter of an inch long. *Stipules* from a broad connate and therefore amplexicaul base, terminating suddenly in a long cuspidate spine-like point. *Corymb* terminal, large, on a long *peduncle*, which, as well as the trichotomous *branches*, are deep coral-coloured. *Calyx* almost turbinate, with two small *bracteoles* at the base: the *limb* of four, erect, rounded, obtuse *lobes*. *Tube* of the *corolla* an inch and a half long, slender filiform, red: *limb* an inch across, deep orange-red, the *lobes* horizontally patent, obovato-rotundate. *Anthers* linear, when perfect lying at the

mouth of the corolla, but very deciduous. *Style* as long as the tube of the corolla; its thickened bifid *stigma* a little exserted. *W. J. H.*

Cult. This, like the majority of the genus, is a showy species. Being a native of Java, it requires to be cultivated in a warm and moist stove; and this is not only necessary in order to produce luxuriant growth, but also to prevent the plants from becoming infested with insects, to which the species of this and other allied genera are very commonly subject, and which often cannot be got rid of without making the plants look very unsightly and producing an unhealthy condition. Pits heated with fermenting stable-litter or leaves, are well suited to the growth of such plants as *Ixora*; the confined and moist atmosphere encourages a vigorous growth, and this, with the vapour arising from the fermenting matter, are great preventatives of the breeding of insects. The soil may consist of about one-half light loam and peat, or leaf-mould, with a small quantity of sharp sand, and care must be taken to drain it well, and, in shifting, not to overpot it. This, like the rest of the genus, is readily increased by cuttings treated in the manner generally recommended for the propagation of hard-wooded stove plants. *J. S.*

Fig. 1. Calyx and pistil:—*magnified.*

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Fitch del et lith.

Reeve & Nichols, imp

Tab. 4587.

FORSYTHIA VIRIDISSIMA.

Dark-green-leaved Forsythia.

Nat. Ord. Oleaceæ.—Diandria Monogynia.

Gen. Char. *Calyx* brevissime campanulatus, 4-partitus, deciduus. *Corolla* subcampanulata, 4-partita, tubo brevissimo, lobis æstivatione contortis. *Stamina* 2, imo tubo inserta, inclusa. *Ovarium* biloculare, *loculis* pluriovulatis. *Stylus* brevis. *Stigma* capitato-bilobum. *Capsula* ovata, compressiuscula, sublignosa, corticata, bilocularis, loculicido-bivalvis, valvis medio septiferis. *Semina* in loculis numerosa (*Zucc.*), pauca (*Endl.*), sub-4 (*Bung.*), pendula, anguste alata. *Embryo* in axi albuminis carnosi, *cotyledonibus* foliaceis, *radicula* brevi.—Frutex *Chinensis*, ramis *oppositis*; gemmis *squamosis*; foliis *oppositis*, *ternis quaternisve*, *petiolatis*, *simplicibus vel ternato-pinnatisectis*, *serratis*. Flores *ante folia nascentes*, *e gemma solitarii*, *pedicellati*, *lutei*, *rubro-striati*. *De Cand.*

Forsythia *viridissima*; ramis erectis tetragonis, foliis simplicibus oblongis et oblongo-lanceolatis petiolatis versus apicem serratis dimidio inferiore integerrimis, floribus ante folia breviter pedicellatis geminatis cernuis, sepalis subrotundis convexis ovarii longitudine. *Lindl.*

Forsythia viridissima. *Lindl. in Journ. of Hort. Soc. v.* 1. *p.* 226, *et in Bot. Reg.* 1847. *t.* 39. *Walp. Repert. Bot. p.* 501.

The original *Forsythia*, established on a Chinese plant cultivated in Japan, where it was introduced from China, appears to have been introduced into Holland in 1833 by M. V. Pistorius: but has never been cultivated in England. That species is called *F. suspensa*, from the fact of a common form or variety of it having lax pendent branches: it has ternate leaves, broad obovate segments to the corolla, and longer calycine lobes. Our plant bears the open air exceedingly well against a wall, and produces its copious bright yellow flowers while the leaves are yet but partially expanded. Introduced to Europe by Mr. Fortune.

Descr. A branching *shrub* four to six feet high. *Branches* erect, angular, darkish brown. *Leaves* (appearing after the flowers) oblong or ovato-lanceolate, or altogether lanceolate, acute, serrated in the upper half, tapering into a short footstalk, penni-nerved. *Peduncles* short, solitary or in pairs from the sides of the branches, each arising from a scaly bud. *Calyx* deeply cut

into four oval, concave, membranaceous, green *lobes*, as long as the tube of the corolla. *Corolla* large, yellow, rotate rather than campanulate; *tube* very short, *limb* of four spreading, oblong, obtuse segments, everywhere glabrous. *Stamens* two, inserted near the base of the corolla, short, included. *Anthers* oblong. *Ovary* nearly globose. *Style* longer than the tube of the corolla. *Stigma* bifid. *W. J. H.*

Cult. This is a shrub of recent introduction, and appears to be quite hardy, but, on account of its early vernation, the young leaves are apt to be affected by our late spring frosts. It forms an erect bushy shrub, grows in any kind of garden-soil, and increases readily by cuttings or by layers. *J. S.*

Fig. 1. Tube of the corolla, laid open. 2. Pistil. 3. Stamen :—*magnified.*

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Reeve & Nichols, imp.

TAB. 4588.

ACACIA HISPIDISSIMA, *De Cand.*

Hispid Acacia.

Nat. Ord. LEGUMINOSÆ.—POLYGAMIA POLYANDRIA.

Gen. Char. (*Vide supra*, TAB. 4306.)

ACACIA *hispidissima* (§ Pulchellæ); ramulis pubescentibus et piloso-hispidissimis, spinis axillaribus subulatis, foliorum pinnis unijugis, petiolo brevissimo submutico, glandula longe stipitata (v. nulla?), foliolis 5–7-jugis v. linearibus glabris nudis v. margine scabriusculis ciliatisve, capitulis globosis. *Benth.*

ACACIA hispidissima. *De Cand. Prodr. v.* 2. *p.* 455. *Benth. in Hook. Lond. Journ. Bot. v.* 1. *p.* 388. *Walp. Repert. Bot. v.* 1. *p.* 908.

ACACIA Cycnorum? *Benth. in Hook. Lond. Journ. Bot. v.* 1. *p.* 388. *Walp. Repert. Bot. v.* 1. *p.* 908.

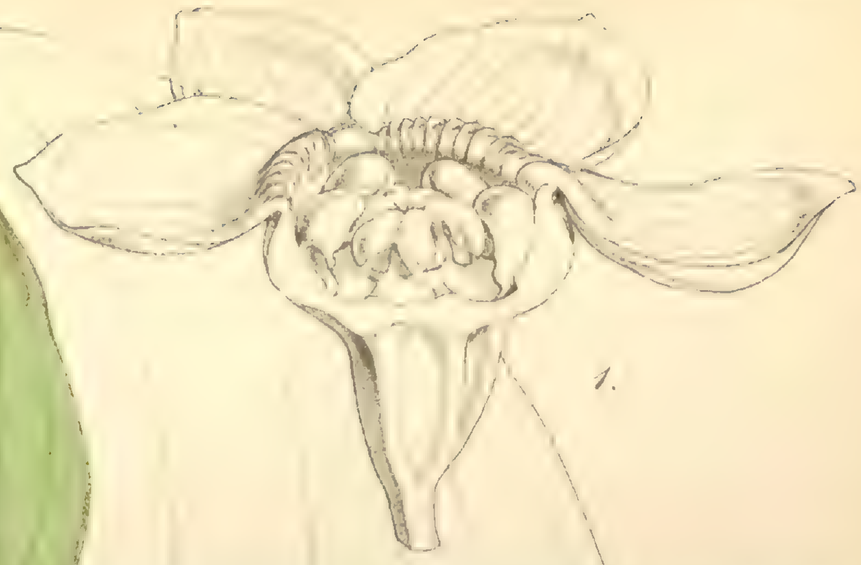
A Swan River plant, introduced by Mr. Drummond. There are four Acacias enumerated by Mr. Bentham as nearly allied to, and perhaps not really distinct from, each other; *A. pulchella*, Brown, figured in Lodd. Bot. Cab. t. 212; *A. lasiocarpa*, Benth.; *A. hispidissima*, De Cand.; and *R. Cycnorum*, Benth.,—all from the Swan River settlement. Our plant accords best with the *A. hispidissima*, except that it should have pedicellated glands on the leaves, whereas both our native and cultivated specimens are destitute of them: in this particular agreeing with the *A. Cycnorum*, which, however, ought to have pubescent and not very hispid branches. It may thus, we think, fairly be conceded that *A. Cycnorum* and *A. hispidissima* are but varieties of each other. The present is a very handsome species, having much larger leaflets and much larger capitula of flowers than *A. pulchella*, and these flowers of a rich deep yellow colour. It is, further, much stouter and more compactly growing than that species, forming very dense masses of foliage, and equally dense globose heads of flowers.

DESCR. A much-branching *shrub*, with angular *branches*, and these branches and branchlets, and peduncles too, downy and densely hispid with spreading hairs, varying much in length.

Leaves copious, nearly sessile, dark green: *pinnæ* unijugate, bearing five to seven oblong *leaflets*, which are obtuse, glabrous or ciliated. A sharp acicular reddish *spine* is situated at the base of the leaf, and is about half its length. From the base of the leaf also the peduncles appear, generally in pairs, shorter (usually) than the leaf, and bearing a dense golden head of numerous little *flowers*. *W. J. H.*

Cult. This showy *Acacia*, like most of the Australian species of that genus, requires the protection of the greenhouse. It thrives in a mixture of light loam and sandy peat-soil, and, being a free grower, is well adapted either for planting out in the conservatory border or for growing in a pot. If due attention is paid to training and stopping the leading shoots, it will soon form a neat round bushy plant, and in spring present a gay appearance when in flower. It is increased by seeds, which vegetate readily in a moderate heat. *J. S.*

Fig. 1. Portion of a branch, with leaf, spine, and capitula. 2. Leaflet :— *magnified.*



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Fitch del et lith.

Reeve & Nichols imp.

Tab. 4589.

ATACCIA cristata.

Crested Ataccia.

Nat. Ord. Taccaceæ.—Hexandria Monogynia.

Gen. Char. Flores hermaphroditi. *Perigonii corollini tubus* cum ovario connatus : *limbus* superus, sex-partitus, *laciniis* interioribus majoribus, reflexis, persistentibus. *Stamina* 6, basi laciniarum limbi inserta : *filamenta* lata, superne concava ; *antheræ* introrsæ, biloculares, loculis discretis, parallelis, concavitati intus adnatis, erectis. *Ovarium* cum perigonii tubo connatum ; *placentis* parietalibus tribus, bilobis, axim fere attingentibus, subtriloculare. *Ovula* plurima, amphitropa. *Stylus* brevis, crassus, trisulcus ; *stigma* capitato-trilobum, lobis emarginatis. *Bacca* semitrilocularis, polysperma. *Semina* lunata. *Embryo* minimus, in basi albuminis carnosi ab umbilico remotus.—Herba *in Indiæ orientalis (Americæque tropicæ) humidis vigens* ; radice *tuberosa, subconica*, foliis *omnibus radicalibus, petiolatis, ovato-oblongis, acuminatis, venosis, integerrimis*, petiolis *canaliculatis, basi subvaginantibus, scabris*, scapo *basi foliorum vaginis velato, indiviso*, umbella *terminali simplici*, involucro *subtetraphyllo, foliaceo*, floribus *pedicellatis*, pedicellis *filiformibus, sterilibus intermixtis. Endl.*

Ataccia *cristata* ; involucri foliolis tetraphyllis duabus seriebus insertis quorum 2 interioribus superioribus unilateralibus erectis maximis ovato-rotundatis inferne longe attenuatis 2 exterioribus oppositis ovato-acuminatis patentibus, pedunculis sterilibus copiosis semipedalibus, foliis oblongis, scapis petiolisque erectis elongatis lævibus.

Ataccia cristata. *Kunth, Enum. Pl. v.* 5. *p.* 466.

Tacca cristata. *Jack, Malay. Misc. in Hook. Bot. Misc. v.* 2. *p.* 73.

Tacca Rafflesiana. *Jack, in Wall. Cat. n.* 5172.

Both Endlicher and Kunth, though they follow Presl in adopting this genus *Ataccia* for the entire-leaved species of *Tacca*, yet express their doubts as to the propriety of the separation. I am incompetent to pronounce, through a want of recent specimens of the original *Tacca*, on the value of the distinctions : but, judging from the figures and dried specimens, the difference is more in habit than in essential character. *Tacca* has multifid leaves and tuberous roots, and may be considered an annual plant. *Eutaccia* has entire leaves, a short subterraneous conical stem or caudex, quite different from the tubers of the former. There is no difficulty, therefore, in recognizing the respective genera.

A. cristata, the subject here figured, has been long cultivated in the stove of the Royal Gardens of Kew, under the name of *Tacca integrifolia*, Gawl., and is a native of the Malay Islands and Archipelago. *Tacca aspera*, Roxb. (*T. integrifolia*, Gawl. in Bot. Mag. t. 1488, and of Roxb. Coromandel plants, vol. iii. t. 257), from Chittagong, may be known by the short scape or flower-stalk, which, as well as the petioles, are scabrous. *Tacca*

lævis, Roxb., from "Silhet Gualpara, and Chappedong (Wall.) and Assam, is easily recognized by the four sessile uniform leaves of the involucre, and small and slender habit. *Tacca lanceæfolia*, Zoll. (*Ataccia*, Kth.), is probably a variety of the latter.—All these are Indian: but I possess another and distinct species from Demerara, South America, with a creeping rhizoma! There are few more remarkable-looking plants in cultivation than our *Ataccia cristata*.

Descr. *Root* a few coarse fibres, issuing from a short, underground, conical, descending *caudex* or *rhizoma*, marked with the rings or scars of fallen leaves, and here and there throwing out small tubers or gemmæ. *Leaves* three or four, all from this short caudex. *Petioles* semiterete, smooth: the *blade* oblong, acuminate, dark purple-green, penninerved, nerves mostly prominent beneath. *Scape* about as long as the leaves, erect, stout, angled, dark purple, smooth: terminated by a large, dark-purple, four-leaved, membranaceous *involucre*: the two outer *leaflets* opposite, sessile, ovato-acuminate, striated, patent, two inner placed side by side, erect, very large, greenish, striated, reticulated, edged with purple; the shape broadly ovate, acute, but tapering into a long, narrow, deep purple base. *Peduncles* numerous, dark purple, about two inches long, terminated each by a single flower, and forming a drooping unilateral *umbel*: these *floral peduncles* are accompanied by several (external) long, tapering, filiform *sterile* ones, six inches long, which spread out in their lower portion, while the rest of the tendril-like peduncle droops. *Perianth* dark purple: the *tube* turbinate, six-angled, for the greater part united with the ovary; the *limb* sexpartite, suddenly reflexed; the *segments* or *lobes* in two series, outer smaller, the inner larger, all ovato-rotundate, acute, striated, the rim of the mouth forming a crenated *ring*. *Stamens* six, within the mouth of the tube: *filament* broad, the margin lamellate and plaited, the back cohering with the perianth; *anther* cucullate, two-celled: *pollen* globose. *Ovary* adherent with the calyx-tube, one-celled, having three longitudinal, furrowed, parietal *placentæ*, bearing several *ovules*. *Style* short, conical, six-furrowed. *Stigma* of three, broad obcordate, green, reflexed, plaited lobes; the edges of the plaits ciliated. *W. J. H.*

Cult. This singular tropical plant is of easy cultivation. It grows and flowers freely in a moist, warm stove. A mixture of light loam and peat-soil suits it, and, being a native of moist places, it requires a copious supply of water. It increases freely by offsets, which are produced from the sides of the erect rhizome-like caudex; these offsets, when separated, root readily in small pots placed in a close moist atmosphere. *J. S.*

Fig. 1. Section of a flower. 2. Portion of the perianth bearing a stamen 3. Style and stigma:—*magnified*.

2

3.

Reeve & Nichols

Tab. 4590.

BERBERIS Darwinii.

Mr. Darwin's Berberry.

Nat. Ord. Berberideæ.—Hexandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4308.)

Berberis *Darwinii*; ramis junioribus rufo-pubescentibus, spinis brevibus palmato-partitis, foliis rigide coriaceis nitidis discoloribus cuneatis apice trifidis margine paucidentatis dentibus lobisque spinescentibus, racemis copiosis folio longioribus, pedicellis flores vix superantibus gracilibus, baccis glauco-nigricantibus (una cum stylo persistente) lageniformibus.

Berberis Darwinii. *Hook. Ic. Plant. v. 7. t. 672. Moore, Gard. Mag. of Bot.* 1851. 129 *cum ic. Lindl. et Paxt. Fl. Garden*, 1851. *t.* 46.

Of all the Berberries yet known in cultivation, no one certainly is more beautiful than the present, and, in my late visit paid to the two unrivalled Nurseries in Exeter, Messrs. Lucombe and Pince and Messrs. Veitch, it was a great treat to see this flourishing in the open air, in the collection of the latter (Messrs. Veitch), by whom it has been introduced from South Chili by their collector, Mr. William Lobb. The leaves are copious and glossy, the racemes of flowers are of a rich golden colour, and the peduncle and pedicels are often beautifully tinged with red. Its first discoverer was Mr. Darwin: and it appears to have been since found by every naturalist visiting Chiloe or the opposite coast of South Chili.

Descr. A moderate-sized *shrub*, with dark brown *branches*, the younger ones clothed with rufous pubescence. *Leaves* copious, sessile, cuneate, coriaceous, firm and very glossy, dark green above, pale beneath, the apex trifid, the lobes spinescent, one or more spinous teeth often appear lower down from the apex of the leaf. *Stipulary spines* short, palmated, firm. *Racemes* very abundant, drooping. *Peduncles*, *pedicels*, and small *bracteas* more or less tinged with red. *Pedicels* slender, rather longer than the flower. *Calyx* of six *sepals*, three outer smaller,

ovate, orange-red, three inner of the same size and shape (oblong, concave) and colour as the petals, slightly spreading. *Corolla* of six, erect, moderately concave, deep golden or orange-coloured *petals*, emarginate at the apex and having two *glands* at the base within, one on each side the base of the filament. *Stamens* shorter than the petals. *Anther* opening by two oblong valves. *Ovary* oblong-ovate, tapering into a thickened *style*. *Stigma* peltate, large. *W. J. H.*

Cult. This fine species of Berberry proves to be quite hardy in the climate of Devonshire, and forms a handsome evergreen bush. It is said to be found, in its native country, growing near the limit of the summer-line of snow, but we fear that it does not come from a sufficiently high southern latitude to warrant the supposition that it will bear with impunity the severity of some of our winters, except in favourable situations in the southern and western counties near the coast. *J. S.*

Fig. 1. Flower. 2. Petal and stamen. 3. Pistil :—*magnified.*

3. 2.

Reeve & Nichols, imp.

Tab. 4591.

PITCAIRNIA EXSCAPA.

Stemless Pitcairnia.

Nat. Ord. Bromeliaceæ.—Hexandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4241.)

Pitcairnia *exscapa*; caule brevissimo pseudo-bulboso, foliis fere omnino radicalibus lineari-elongatis tenuissime longissime acuminatis integris, vaginis inflatis margine superno ciliato-asperis, spicis radicalibus capitatis ovatis imbricatim bracteatis subsessilibus, bracteis lanceolato-acuminatis exterioribus calycibusque hirsutis spinis acicularibus nigro-fuscis intermixtis, petalis lineari-oblongis galeato-curvatis basi intus nectariferis.

This very curious and rather handsome *Pitcairnia* was detected, as an infant plant, among some Orchidaceæ purchased from New Grenada, by Mr. Jackson of the Kingston Nursery, Surrey. They were carefully reared, and our figure represents two of them in a flowering state. The species is remarkable for the great length of the very attenuated leaves, and no less so for the sessile and densely bracteated spike of red flowers. I can nowhere find such a species described. It belongs, as far as the structure of the flower is concerned, to the same groupe as *Pitcairnia suaveolens*, Lindl., figured in Botanical Register, t. 1069, that is to say, where the petals have a certain twist, occasioning their apices to point one way, and there is, moreover, a curvature there, giving a galeated character to these petals. We possess, from New Grenada, two other stemless and scapeless (or nearly so) *Pitcairnias*, and there, too, the bracteas are mixed with black spines: but in those the spines themselves bear short spreading spines on the sides.

Descr. Stemless or nearly so. A kind of *pseudo-bulb* is formed at the base of the plant, sheathed by the dilated, dark brown bases of the outer leaves. The *leaves*, therefore, may be said to spring from the root, and are, many of them, full three feet long, like those of a coarse *Carex*, linear, carinated externally and gradually attenuated into a very long narrow point, quite

entire, glabrous, a part of the upper margin of the sheath being alone ciliated, rather strongly so. From the centre of these leaves appears a nearly sessile, ovate head of *flowers*, in part concealed by numerous *bracteas*, imbricating each other; the inner ones longer, narrower, yellowish-green, glabrous, the outer brown, broader, and hairy or cobwebby: these bracteas are intermingled with a few strong, acicular, almost brown *spines*. *Calyx* quite concealed by the bracteas, yellow-green: *sepals* lanceolate, acuminate, hairy. *Petals* red, curved and galeate, bearing a notched scale at the base within. *Stamens* shorter than the petals. *Ovary* superior, trisulcate. *Style* elongated. *Stigmas* three, twisted. *W. J. H.*

Cult. This plant requires a warm stove, and thrives in any kind of light open soil not retentive of moisture. Care must be taken not to water it too copiously. The old roots of this species, like those of many of its allies, after a time lose their vitality, and, by their continued increase, become a nidus of support to the succeeding young roots; but in cultivation it is advisable occasionally to turn the plant out of the pot and divest it entirely of the old roots, at the same time cutting away the lower part of the caudex, which will also be found to be dead. The plant on being repotted will soon emit young roots, and show a more vigorous growth. It is increased by offsets, and our plant shows at this time the appearance of producing perfect seeds. *J. S.*

Fig. 1. Flower. 2. Petal. 3. Pistil:—*magnified.*

Reeve del. Michels imp.

Tab. 4592.

PYXIDANTHERA barbulata.

Bearded Pyxidanthera.

Nat. Ord. Diapensiaceæ.—Pentandria Monogynia.

Gen. Char. *Calyx* imbricato-tribracteatus, pentaphyllus, foliis membranaceis subæqualibus. *Corolla* hypogyna, subhypocraterimorpha, limbi quinquefidi laciniis æstivatione imbricatis. *Stamina* 5, corollæ fauci inserta, ejusdem laciniis alterna; *filamenta* brevia, petaloidea, dilatata; *antheræ* biloculares, transversim bivalves, valvula inferiore aristata. *Discus hypogynus* nullus. *Ovarium* triloculare, loculis pauciovulatis. *Stylus* simplex; *stigma* brevissime tridentatum. *Fructus: capsula* 3-locularis, 3-valvis, (Torrey) oligosperma.—Suffruticulus *boreali-americanus*, *repens*, *ramulis assurgentibus*, foliis *inferioribus oppositis*, *superioribus confertim alternis*, *coriaceis*, *cuneato-lanceolatis*, *basi interiore barbatis*, *integerrimis*, *in marginem ciliatum subdecurrentibus*, flore *terminali solitario*, *inter folia sessili*. ***Endlicher.***

Pyxidanthera * *barbulata.*

Pyxidanthera barbulata. *Mich. Fl. Bor. Am. v.* 1. *p.* 132. *t.* 17.

Diapensia barbulata. *Ell. Sketch, v.* 1. *p.* 229. *Torrey, Fl. North. and Middle St. p.* 231.

Diapensia cuneifolia. *Salish. Paradis. Lond. sub tab.* 104. *Pursh, Fl. Am. v.* 1. *p.* 148. *Spreng. Syst. Veget. v.* 1. *p.* 623.

Early in the month of May I was gratified on the arrival of the Royal Mail Steamer from New York, with tufts of this charming little plant sent me by Mr. Evans of Radnor, Delaware, gathered in the Pine-barrens of New Jersey, as fresh and as full of perfect flowers as if that day removed from the native soil. These have given me the means of publishing the accompanying figure, of which, as far as we know, no other representation has been given than the very indifferent one of Michaux. The genus we think correctly distinguished from *Diapensia* by the aristate anthers and few-seeded capsules and habit. It is more difficult to determine the place of this little family. It clearly belongs to the "*Corollifloræ*," yet De Candolle has hitherto passed it by. Brown removes it from *Convolvulaceæ*, where Jussieu was inclined to place it. Salisbury referred it to *Ericaceæ*, but appa-

* A name of Michaux; derived from πυξὶς, πυξίδος, a *box*, the anthers opening transversely, like the lid of a box.

rently with little reason; and Endlicher says of it, "*Ericaceis affinis.*" Dr. Lindley places it between *Loganiaceæ* and *Stilbaceæ*.—If it should prove easy of cultivation *Pyxidanthera* would make a charming rock-plant: the rose-coloured buds are as pretty, nestling among the copious foliage, as the fully expanded white flowers.

Descr. A small, tufted, procumbent, creeping, and wide-spreading *shrub*, having a long *tap-root* in the centre of the tuft: *branches* terete, slender, younger ones woolly. *Leaves* alternate, cuneato-oblong, very acute, almost aristate, the young ones woolly at their base within, and hence the specific name of "*barbulata.*" That character disappears in the older portions of the plant. *Flowers* solitary sessile, from little branches with rosulate leaves. *Calyx* of five, concave, reddish *sepals*, as long as the tube of the corolla. *Corolla* monopetalous, white: *tube* short: *limb* of five, rounded-cuneate, spreading, slightly crenated *lobes*. *Stamens* in the sinuses of the corolla. *Filaments* broad, white, almost petaloid, bearing a drooping yellow *anther* of two almost globose lobes, opening transversely, and bearing an *awn* on the lower valve. *Ovary* ovate, with a thickened ring at the base, three-celled, few-seeded (four or five in each cell) attached to a central placenta. *Style* as long as the tube of the corolla. *Stigma* of three small spreading rays. *W. J. H.*

Cult. We have several times received from the United States flowering tufts of this very small shrub; but although they have been placed under different kinds of treatment, both in the open air and under protection, we have not yet succeeded in keeping them long alive. Dr. Asa Gray informs us that the shrub grows in the warm "pine-barrens" of New Jersey, in low but not wet places, generally on little knolls, fully exposed to the sun, in a soil of pure sand mixed with vegetable mould. We have examined the soil in which it grows, which we find no difficulty in imitating, and by attention the proper degree of moisture and temperature can be maintained; but as it has not thriven under our care, we infer that the want of success is owing to some peculiarity in its nature, together with the difference between the climate of this country and that of its native locality. One thing to be noticed is that our imported plants have certainly been very old, having (comparatively) long wiry roots, like the old roots of a Heath. It is probable that our cultivation might meet with better success if young plants could be procured, either from cuttings or from seeds. *J. S.*

Fig. 1. Portion of a branch with old leaves. 2. Flower. 3. Portion of the corolla with a stamen. 4. Pistil. 5. Transverse section of the ovary, with ovules:—*magnified.*

Tab. 4593.

LEUCOTHÖE neriifolia.

Oleander-leaved Leucothöe.

Nat. Ord. Ericaceæ.—Decandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4314.)

Leucothöe *neriifolia*; glaberrima, ramis teretibus (siccitate subangulatis), foliis cordato-oblongis subacuminatis mucronato-acutissimis pungentibus basi emarginatis brevissime petiolatis coriaceis subtus minute reticulatis, racemis axillaribus erectis (seu erecto-patentibus elongatis), rachide pedicellisque asperulis, bracteolis minutissimis, floribus secundis, corollis (coccineis) ovato-urceolatis, limbo 5-partito laciniis mediocribus patentibus acutis.

Leucothöe neriifolia. *De Cand. Prodr. v.* 7. *p.* 605.

Andromeda neriifolia. *Schlecht. in Linnæa, v.* 1. *p.* 522.

Agarista neriifolia. *Don, Gard. Dict. v.* 3. *p.* 838.

Leucothöe crassifolia. *De Cand. Prodr. v.* 7. *p.* 605.

Andromeda crassifolia. *Pohl, Pl. Bras. v.* 2. *p.* 34.

Agarista Pohlii. *Don, Gard. Dict. v.* 3. *p.* 837.

This handsome plant quite corresponds with what we believe to be *L. neriifolia*, De Cand. (*Andromeda*, Schlecht.), first found by Sellow in tropical Brazil, then by Mr. Gardner in Minas Geraes (n. 4989 of his Brazilian collection); and we equally believe *L. crassifolia* to be a mere form of the same, nor are we sure that the *Andromeda subrotunda* of Pohl, Pl. Bras. vol. ii. p. 32. t. 121, is not also a short-leaved and short-racemed variety of it. Under our *L. pulchra* (supra, Tab. 4314), we were induced to express an opinion derived from an inspection of our dried specimens, that the *L. crassifolia* was probably not different from that; and truly, save in the shorter leaves, nearly erect racemes, *red* flowers, and somewhat shorter corolla, with a more distinct limb, we can hardly point out any specific distinction. This is worthy of a place in every greenhouse. Our flowering specimen was communicated by Mr. Cunningham of Comeley Bank Nursery, without any history or note of its introduction. The ovary is remarkable for producing at its base, in all the

flowers we examined, simple or branched subulate filaments, which from their position may be considered abortive stamens.

Descr. A moderate-sized *shrub*, with very coriaceous, evergreen, oblong *leaves*, gradually acuminated at the point and then ending in a mucro, the base cordate, footstalk very short, glabrous on both sides, minutely reticulated beneath. *Raceme* solitary, from the upper axils of the leaves, much longer than they, nearly erect, very handsome. *Rachis* and *pedicels* red, indistinctly rugulose (under a glass) with very minute acicular bracteoles. *Calyx* red, deeply five-cleft. *Corolla* bright scarlet, between ovate and urceolate, very thick and fleshy: *limb* moderately large, of five, acute, spreading lobes. *Stamens* ten. *Filaments* flexuose, subulate, hairy. *Anthers* gibbous at the base, biporous. *Ovary* globose, five-lobed, on a five-lobed disk. *Style* jointed on the ovary, incrassated upwards. *W. J. H.*

Cult. The genus *Leucothöe* contains above thirty described species: four of them are found in Madagascar and Bourbon, the remainder are natives of the American continent, extending from South Brazil to the southern states of North America. Those from the latter country have been known in our gardens under the names of *Andromeda axillaris*, *coriacea*, &c., and are sufficiently hardy to bear the severity of our ordinary winters; but the more southern species, although natives of elevated regions, are not hardy enough for this climate without protection. The species figured is one of the latter class, and should be treated as a greenhouse plant. It thrives in light peat-soil well drained. It should be placed in a cool shady house or pit, especially in summer, for, like the generality of Ericaceous plants from elevated regions, it is apt to suffer by full exposure to the sun of this climate. *J. S.*

Fig. 1. Flower. 2. Stamen. 3. Pistil with abortive stamens?—*magnified*.

Tab. 4594.

ALLAMANDA neriifolia.

Oleander-leaved Allamanda.

Nat. Ord. Apocyneæ.—Pentandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4351.)

Allamanda *neriifolia*; erecta glabra, foliis oblongis brevi-petiolatis acuminatis, paniculis multifloris aphyllis, calycis lobis ovato-lanceolatis patentibus, corollæ tubi parte constricta perbrevi vix calycem superante basi dilatata angulata reliqua (seu fauce) elongata infundibuliformi-campanulata, limbi lobis rotundatis acutis.

Allamanda neriifolia. *Hortul.*

Received by Messrs. Lucombe and Pince, of the Exeter Nursery, from the continent, under the name here adopted, but I can nowhere find it described. Its habit is extremely different from that of any described species, as is the form of the corolla, with its singularly short contracted base of the tube, swollen and angled at the base, and the very elongated upper portion: the colour is a deep almost golden yellow, and it is streaked with orange. "The plant," observes Mr. Pince, "from which the specimen was cut, is now only three feet high. It commenced flowering when but eighteen inches high. The first and largest cluster consisted of thirty finely expanded flowers. I consider it one of the finest of our stove-plants, taking up little room, and making a noble appearance." What I saw of this plant in Messrs. Lucombe and Pince's Nursery, in the month of June, fully substantiates this praise.

Descr. An evergreen *shrub*, with copious and handsome foliage, everywhere glabrous. *Leaves* oblong, on short petioles, acuminated, deep green above, pale and reticulated beneath. *Panicle* of many flowers, in reality terminal, but, by and by, lateral from innovations or young shoots which again terminate with clusters of flowers. *Calyx* of five, ovato-lanceolate, spreading *lobes*. *Corolla* smaller than in our *A. Schottii* (Tab. 4351) or *A. Aubletii* (Tab. 4411), but deeper-coloured than either, and elegantly streaked with orange. In shape it is quite different

from both, the lower and contracted portion of the *tube* being very short, swollen, and angled at the base, the rest of the tube or faux is bent at an angle and much elongated, between funnel-shaped and campanulate: the lobes are rounded, acute, spreading. *Stamens* and *pistils* quite included. *W. J. H.*.

Cult. This, like the other species of the genus, requires to be grown in a warm and moist stove. It is a free-growing plant of scandent habit, and is well adapted for planting against a back wall or for training up pillars: it also flowers freely when treated as a pot-plant, the branches being supported either by stakes or a wire trellis. A mixture of light loam and leaf-mould suits it; and during the season of growth it needs a free supply of water. It is readily increased by cuttings, treated in the manner usually recommended for stove-plants. *J. S.*

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2.

Tab. 4595.

ARBUTUS mollis.

Soft-leaved Arbutus.

Nat. Ord. Ericaceæ.—Decandria Monogynia.

Gen. Char. Calyx 5-partitus, segmentis acutis non imbricatis. *Corolla* globoso-urceolata, ore contracto 5-dentato. *Stamina* 10, inclusa, filamentis barbatis, antheris brevibus, loculis 1-aristatis. *Stigma* truncatum. *Capsula* 5-locularis, 5-valvis, loculicido-dehiscens. *Placenta* 5-loba. *Semina* elliptica, compressa, nitida, hylo laterali lineari (Don).—Suffrutex *in hemisphæra boreali sparsus glaberrimus.* Folia *alterna, lineari- aut subovali-lanceolata, integerrima, margine revoluta, subtus glauco-albida, breviter petiolata.* Flores *subterminales, fere umbellati, pedicellati, nec ut in icone Eng. Bot. t.* 713 *subsessiles, etiam per maturitatem erecti.* Bracteæ *ovatæ.* Corollæ *albæ aut roseæ.*

Arbutus *mollis*; foliis oblongis acutis subintegerrimis serratisve subtus canescenti-tomentosis, racemis paniculatis tomentosis, pedicellis secundis curvatis bracteatis, bracteis ovatis, floribus cernuis, corolla lageniformi parte inferiori insigniter inflata, ore contracto, limbi lobis 5 rotundatis patentibus, filamentis basi valde dilatatis hirsutissimis, ovario granulato villoso.

Arbutus mollis. *H. B. K. Nov. Gen. Am. v.* 3. *p.* 279. *De Cand. Prodr. v.* 7. *p.* 582. *Spreng. Syst. Veget. v.* 2. *p.* 286.

A native of Mexico, and, according to Humboldt, of Guanaxato, and sent to our gardens by M. Van Houtte from Ghent, under the name we have adopted. Messrs. Humboldt and Kunth, however, say, "præcedenti (*A. Xalapensi*) simillima;" indeed, Mr. Bentham, under *A. densiflora*, H.B.K. in 'Plantæ Hartwegianæ,' has remarked "an species plures Kunthii hujus tantum varietates?" All four of that author approach very near each other, and our specimens show them to be very variable in the form and margin of the leaf, and in the more or less dense spike. This fine species flowers in a warm greenhouse in June.

Descr. A handsome evergreen *shrub*, or perhaps small *tree*, with alternate *leaves*, which are coriaceous, oblong or oblongo-lanceolate, between acute and acuminate, the base sometimes acute, sometimes obtuse, the margin pretty strongly serrated, above glabrous or partially tomentose, beneath clothed with ashy

tomentum, or sometimes of a slightly ferruginous tint. *Racemes* terminal, forming a lax *panicle*, the lower ones spreading or decurved. *Rachis* stout, downy. *Pedicels* downy, curved downwards, hence secund, bracteated; *bracteas* small, ovate. *Calyx* small, deeply 5-fid, spreading. *Corolla* large, ampullaceous or lageniform, glabrous or downy, white or greenish rose-colour; the lower portion forms an inflated ring, the rest of the tube is hemispherical, tapering into a short contracted mouth: *limb* of five small rounded lobes. *Stamens* ten: *filaments* singularly dilated a little above the base and very hairy; *anthers* of two compressed cells, each with a decurved awn at the back. *Ovary* globose, granulated, hairy, surrounded by an hypogynous ten-lobed *annulus*. *Style* columnar. *Stigma* depresso-capitate. *W. J. H.*

Cult. An *Arbutus* which, like the other Mexican species of the genus, is tolerably hardy, but not sufficiently so to enable it to endure the cold of our winters without some kind of protection. It is, therefore, necessary to treat it as a greenhouse plant. It grows well in a mixture of light loam and peat-soil, and may be increased by cuttings or seeds, or by grafting it on stocks of the common *Arbutus* or of species of allied genera. *J. S.*

Fig. 1. Flower. 2. Calyx and Pistil. 3. Stamen:—*magnified.*

Tab. 4596.

CATHCARTIA villosa.

Villous Cathcartia.

Nat. Ord. Papaveraceæ.—Polyandria Monogynia.

Gen. Char. Calyx diphyllus, foliolis æstivatione imbricatis, caducis. *Corollæ petala* 4, subrotunda, hypogyna, decidua. *Stamina* 25–30, hypogyna: *filamenta* filiformia gracilia; *antheræ* terminales, oblongæ, biloculares, *loculis* latere longitudinaliter dehiscentibus, connectivo interposito. *Ovarium* cylindraceum, 5–6-sulcatum, uniloculare. *Ovula* numerosa, in placentas filiformes 5–6 intervalvulares demum liberas, anatropa. *Stigma* amplum, sessile, hemisphæricum, carnosum, ovario latius, persistens, 5–6-radiatum, *radiis* lamelliformibus. *Capsula* erecta, stricta, siliquiformis, teres, unilocularis ad apicem, infra stigma persistens, fere ad basin 5–6-valvis, valvis linearibus: placentis filiformibus liberis ad apicem stigmati unitis. *Semina* numerosa, ovalia, compressa, scrobiculata, strophiolata, subcristata.—Herba *annua vel biennis ex Himalaya orientali, pilis longis fulvis patentibus villosa.* Caulis *teres, subsimplex.* Folia *inferiora*, radicalia *præcipue, longe petiolata, cordata, subpalmatim seu pedatim* 5-*loba*, lobis *lobulatis*, foliis *superioribus sessilibus, supremis pinnatifido-lobatis.* Pedunculi *terminales axillaresque.* Flores *cernui.* Calyx *hirsutus.* Petala *flava*, *magnitudine* Papaveris Rhæadis. Antheræ *aurantiacæ.* Stigma *viride.*

Cathcartia *villosa. Hook. fil. MS.*

Found in Sikkim-Himalaya by Dr. Hooker, and reared in the Royal Gardens from seeds sent by him in the winter of 1850–1. It flowers in June, and may be treated as a hardy annual: the seeds ripening in July. The long, shaggy, fulvous hairs and bright yellow flowers give it a handsome appearance. In its foliage it differs remarkably from any of the *Papaveraceæ* with which I am acquainted, and no less in the fruit. It has the stigma of *Papaver*, while the mode of dehiscence corresponds rather with that of *Roemeria*. We cannot question its forming a new genus, which is named by Dr. Hooker in compliment to J. F. Cathcart, Esq., B.C.S., late Judge of Tirrhoot, who during a residence at Darjeeling devoted his whole time to the illustration of the botany of that neighbourhood, and superintended the execution, by native artists, at his own expense, of a collection of upwards of 700 folio coloured plates of Himalayan plants. These drawings, which are of great botanical

value, and embrace a multitude of new plants and others of the greatest beauty and rarity, are, by the liberality of their possessor, placed at Dr. Hooker's disposal for the illustration of the Botany of Sikkim. *W. J. H.*

Cult. This new Papaveraceous plant was raised from seeds, received last year from the elevated regions of Sikkim-Himalaya. It appears to be a perennial-rooted plant, but we must await the result of next winter, in order to know whether it is sufficiently hardy to bear the open air of this climate. Hitherto we have kept it in an airy frame, where it has flowered and produced perfect seeds. In summer it may be planted out in the open air in a cool shady place; but at the same time care must be taken that it does not remain long saturated with moisture, for, on account of the soft and villous nature of the leaves, a continued excess of moisture may cause them to damp off. *J. S.*

Reeve & Nichols imp.

Tab. 4597.

PRIMULA Sikkimensis.

Sikkim Primrose.

Nat. Ord. Primulaceæ.—Pentandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4550.)

Primula (Aleuritia) *Sikkimensis*; foliis obovato-oblongis obtusis rugulosis argute duplicato-dentatis in petiolum subæquilongum attenuatis, scapo elongato, floribus umbellatis terminalibus, involucri foliolis lanceolatis erectis sessilibus, calycibus farinosis brevi-tubulosis 5-fidis corollæ tubum æquantibus, corolla (flava) subinfundibuliformi lobis rotundatis emarginatis, antheris sessilibus obtusis, ovario subgloboso, stigmate peltato-capitato.

Mention has been already made of this pretty Primrose in our 'Kew Garden Miscellany,' vol. iii. p. 128, when speaking of the *Cankrienia chrysantha* of Java (*Primula imperialis*, Jungh. MS.), where it is said in a note, "Among the numerous drawings recently sent home by Dr. Hooker from Sikkim-Himalaya, is one of a yellow *Primula* that vies with the *Cankrienia*, and of which that traveller relates, 'It is the pride of all the alpine *Primulas*, inhabits wet boggy places at elevations of from 12–17,000 feet, at Lachen and Lachong, covering acres with a yellow carpet in May and June.'" Seeds transmitted by Dr. Hooker to the Royal Gardens produced plants which flowered in May of the present year; and from one of which our figure is taken. It is, perhaps, the tallest *Primula* in cultivation, and very different from any hitherto described.

Descr. Stemless. *Leaves* all from the root, erecto-patent, 8–9 inches to a foot long (including the petiole), obovato-oblong, thin and submembranaceous, but strongly reticulato-venose, not farinose, obtuse, the margin doubly and sharply toothed, the thickened *midrib* and nerves prominent beneath, where the hue is paler than above; they taper into a long broad red petiole about equal in length to the leaf. *Scape* a foot to two feet high, erect, terete, pale green, bearing an umbel of lemon-yellow

(rather than golden) flowers, about the size of those of *P. vulgaris*. *Involucre* of 5–7 *leaflets*, which are sessile, slightly farinose, erect, lanceolate, a little tinged with red, about half the length of the pedicels. These latter are slightly spreading. *Calyx* tinged with purple, farinose, tubular-oblong, as long as the tube of the corolla, five-lobed about half-way down, *lobes* erect, rather obtuse. *Corolla* with the *tube* as long as the calyx, the *limb* subcampanulate, the mouth being wide, not at all contracted, naked, the *lobes* of the limb moderately spreading, roundish, emarginate. *Anthers* oblong, obtuse, sessile, inserted near the bottom of the tube. *Ovary* round-pyriform. *Style* as long as the tube. *Stigma* capitate, but depressed on the top, hence subpeltate. *W. J. H.*

Cult. A free-growing species, partaking of the habit of the common Primrose, and therefore more permanent under artificial cultivation than the fugacious *Primula capitata* from the same country (figured at Tab. 4550). During the winter we kept the young plants under the protection of a frame; and we shall not know, until next winter has passed, whether this species is sufficiently hardy to withstand, unprotected, the cold of our winters. It is increased by offsets or by seeds. *J. S.*

Fig. 1. Portion of corolla laid open. 2. Pistil:—*magnified.*

Tab. 4598.

ALLIUM Caspium.

Caspian Onion.

Nat. Ord. Asphodeleæ.—Hexandria Monogynia.

Gen. Char. Calyx corollaceus, 6-sepalus, regularis, persistens; *sepala* ima basi connata, uninervia, patentia vel campanulato-conniventia; *interiora* sæpe alius formæ et longitudinis. *Stamina* 6, basi sepalorum inserta, exserta vel inclusa. *Filamenta* subulato-filiformia, inferne magis minusve dilatata, interiora sæpe membranaceo-dilatata, superne ad utrumque latus dente, lobulo vel cuspide filiformi instructa; *exteriora* semper inappendiculata, sæpe breviora et angustiora. *Antheræ* biloculares, introrsæ, ellipticæ vel oblongæ, basi sinuato-bilobæ, dorso medio affixæ. *Ovarium* liberum, sessile, tri- vel interdum, ob septa centrum haud attingentia, uniloculare; *ovula* in loculis duo, adscendentia, collateralia, rarissime plura (3–6) vel solitaria, campylotropa (amphitropa, *Endl.*). *Stylus* filiformis, erectus. *Stigma* obtusum vel capitellatum, interdum bifidum. *Capsula* membranacea, trigastra, tri-, rarius septis incompletis unilocularis, loculicido-trivalvis; *valvis* medio septiferis; *stylo* in axi demum libero, persistente. *Semina* in loculis 1 vel 2, rarissime plura, segmentum sphæræ referentia, angulo ventrali supra basin immediate affixa, atra, subtilissime granuloso-punctulata; *testa* membranacea, albumini carnoso adnata. *Embryo* parum excentricus (homotropus, *Endl.*), subperiphericus, cylindraceo-filiformis, subuncinato-curvatus (falcatus, *Nees ab Esenb.*); *radicula* juxta hilum sita. —Herbæ *bulbosæ, olidæ*; bulbus *tunicatus, interdum e* rhizomate *horizontali enatus.* Scapi *inferne foliati vel subnudi, solidi vel fistulosi.* Folia *canaliculata, semicylindracea vel teretia, sæpius cava, interdum plana, plerumque angusta.* Umbella *terminalis, spatha* 1–2-*valvi membranacea marcescente cincta, interdum bulbillifera.* Flores *erecti, rarius penduli, cum pedicellis haud articulati.* *Kth.*

Allium (§ Molium) *Caspium*; foliis oblongo-linearibus subacuminatis glaucis, umbella multiflora laxa ampla subglobosa, pedicellis longissimis strictis basi bracteolatis, sepalis oblongis obtusiusculis, staminibus sepala duplo fere superantibus.

Allium Caspium, *Bieb. Flo. Taur. Caucas. v.* 1. *p.* 265. *v.* 3. *p.* 260. *Pall. It. v.* 3. *p.* 548. *Don, Mongr. All.* 85. *Spreng. Syst. Veget. v.* 2. *p.* 36. *Kunth, Enum. Pl. v.* 4. *p.* 445.

Amaryllis Caspia, *Willd. Sp. Pl. v.* 2. *p.* 62.

Crinum Caspium, *Pall. It. App. n.* 135. *t. Q.*

Native of the deserts of Astrachan and Tezzier. Dr. Stocks finds it in Scinde, and obligingly sent bulbs to the Royal Gardens, which flowered in May 1851. It has so little of the ordinary appearance of an Onion, that Willdenow called it an

Amaryllis, and Pallas a *Crinum*. It has, however, all the characters of *Allium* and the same savory odour.

Descr. *Bulb* ovate, clothed with thin membranaceous pellucid coats more or less tinged with red. *Leaves* from the lower portion of the stem and from the root, linear-lanceolate, glaucous, slightly acuminate, sometimes waved. *Stem* or *scape* varying much in height, from two, it is said, to ten feet, terete, glaucous. *Spatha* of two, reflexed, membranaceous, pale brown *leaves*. *Umbel* lax, a span wide, nearly globose, of very numerous *pedicels*, dense at their point of origin, (4–5 inches long) so long and so spreading on the lower ones, that they have a lax appearance in the circumference; they are slightly thickened beneath the flower. *Perianth* of six, oblong or narrow, slightly acute *sepals*, green, tinged with purplish-red. *Filaments* deep red, much longer than the sepals. *Anthers* oblong, of the same colour as the sepals. *Ovary* slightly stipitate, globose, three-lobed. *Style* fusiform, bright red, tapering to a sharp point. *W. J. H.*

Cult. A bulbous-rooted, herbaceous plant, stated to have been introduced above twenty years ago, but still rare in collections. Coming from the region of the Caspian, it may be expected to be quite hardy, but as the plant from which this figure was made came to us from Scinde, we have treated it as somewhat tender, having kept it in a frame during last winter. It flowers during the early part of the summer, and has now produced perfect seeds, but does not appear to increase so freely by the production of offsets as the generality of the species of this extensive genus. *J. S.*

Fig. 1. Flower. 2. Pistil:—*magnified.*

3.

Tab. 4599.

PEDICULARIS mollis.

Soft-leaved Indian Lousewort.

Nat. Ord. Scrophularineæ.—Didynamia Angiospermia.

Gen. Char. *Calyx* tubulosus vel campanulatus, antice et interdum postice plus minus fissus, apice 2–5-dentatus, dentibus raro æqualibus, lateralibus connatis vel liberis, cristato-dentatis vel integris, postico sæpissime minore integriore vel integerrimo aut deficiente. *Corollæ tubus* cylindricus vel ad faucem paulo ampliatus; galea compressa obtusa integra vel antice sub apice utrinque dente aucta vel in rostrum truncatum vel bidentatum producta; labium inferius basi suberectum, supra bicristatum, lobis 3 erectis vel sæpius patentibus vel deflexis, lateralibus rotundatis, intermedio minore vel rarius æquali, per æstivationem extimo. *Stamina* sub galea didynama; *filamenta* omnia vel 2 postica saltem basi sæpius pilosa (pilis tamen in eadem specie non constantibus); *antheræ* transversæ, per paria vel omnes arcte approximatæ, loculis æqualibus muticis vel in sola *P. grandiflora* aristatis. *Capsula* compressa, ovata vel lanceolata, plus minus falcata vel obliqua præsertim ad apicem; postice ab apice versus basin et antice sæpius brevius loculicide dehiscens, valvulis medio septiferis. *Semina* in parte inferiore capsulæ lateraliter affixa, ovoidea, majuscula, *testa* appressa vel laxiuscula, foveolato-rugosa vel læviuscula. *Embryo* parvus vel elongatus. *Radicula* ad apicem fructus spectans.—Herbæ *pleræque montanæ utriusque orbis, in hemisphærio australi perpaucæ, in Siberia et in terris arcticis numerosæ.* Folia *alterna vel verticillata rarissime subopposita, semel pluriesve pinnatim divisa vel rarius simpliciter dentata, a radicalibus in floralia decrescentia.* Flores *spicati vel rarius racemosi, ebracteolati.* Folia *floralia bracteæformia, integra vel incisa, rarius caulinis subconformia.*

Pedicularis (§ Verticillatæ Erostres) *mollis*; erecta elata ramosa hirsuta, foliis semel bisve pinnatifidis, laciniis oblongo-lanceolatis inciso-dentatis, spicis gracilibus interruptis, calycis dentibus oblongis cristatis, corollæ tubo vix exserto, galea anguste oblonga recta antice rectilinea labium superante.

Pedicularis mollis. *Wall. Cat. n.* 415. *Benth. Scroph. Ind. p.* 53, *in De Cand. Prodr. v.* 10. *p.* 564.

Mr. Bentham well observes of this *Pedicularis*, "Species nulli proxime affinis:" the form of the corolla is extremely different from any other of the genus, and we are glad of the opportunity of figuring so rare a plant from living specimens. It has nowhere been found except by Dr. Wallich in Gossain Than, Nepal, and in the high mountains of Sikkim-Himalaya by Dr. Hooker: from seeds sent by the latter our plants were raised in the Royal Gardens of Kew.

Descr. *Root* fusiform, sparingly fibrous (perennial?). *Stem* erect, simple, about a foot high, terete, furrowed, clothed, as are

the leaves and calyx, with soft glandular hairs. *Leaves* verticillate, five to six in a whorl, *lower* ones petiolate, upper and *floral* ones (or *bracteas* especially) sessile, lanceolate, pinnate; *pinnæ* rather close-placed (less so in the lower leaves), ovate-lanceolate, pinnatifid. *Spike* elongated, rather contracted, consisting of interrupted whorls of leaves or bracteas, each with its respective *flower*, and about equal in length with the flowers, the upper ones crowded. *Pedicels* very short, hairy. *Calyx* campanulate, five-lobed, the lobes reflexed, inciso-serrate, somewhat leafy. *Corolla* of a deep purple colour, slightly glanduloso-pilose. *Tube* as long as that of the calyx: the *galea* erect, narrow-oblong, obtuse, longer than the lip, the sides involute. *Lip* very broad, spreading or reflexed, cut into three deep rounded lobes, with three embossments or convexities on the disc. *Filaments* of the stamens subulate, glabrous. *Anthers* of two deep lobes. *Ovary* ovate, with a large hypogynous ring at the base. *Style* as well as the stamens included within the convolute galea. *Stigma* small, capitate. *W. J. H.*

Cult. Many species of *Pedicularis* are handsome, showy plants while in flower, quickly coming to maturity in the early part of summer. They grow, for the most part, in grassy, rather wet places, and are indicative of a poor soil. All of them are natives of the northern hemisphere, being extensively distributed throughout Europe and Northern Asia, abounding on the Himalayas, a few extending as far south as the Neilgherries, and even Ceylon. On the continent of America one is found on the Columbian Andes, several in Mexico, the number of species increasing northwards throughout the temperate regions of North America — one or two even reaching Melville Island within the Arctic circle. Two are natives of Great Britain, and, judging from their habit and places of growth, we think that few, if any, of the species can be successfully cultivated in gardens. In Aiton's 'Hortus Kewensis' eleven species are given as having been cultivated in this country before the beginning of the present century; we have, however, seen none of them in a living state, and therefore suppose they had the fate of the species now figured, ceasing to exist after their first year. Their peculiar habit is against their becoming garden-plants, but many foreign species would probably succeed in this country if placed in situations similar to those in which we find our two native species. *J. S.*

Fig. 1. Root-leaf:—*nat. size.* 2. Portion of the lower part of the stem, with whorl of leaves. 3. Flower. 4. Stamen. 5. Pistil:—*magnified.*

1.

Reeve & Nichols imp.

Tab. 4600.

PHYSOCHLAINA GRANDIFLORA.

Large-flowered Physochlaina.

Nat. Ord. Solanaceæ.—Pentandria Monogynia.

Gen. Char. Physochlaina, *Don* (*Belenia*, Dene.). *Calyx* 5-dentatus, demum accrescens, urceolatus v. tubulosus. *Corolla* hypogyna, subcampanulata, regularis, quinqueloba, lobis rotundatis. *Stamina* 5, imo corollæ tubo inserta, faucem superantia, æqualia, filamentis infernè villosis. *Stylus* simplex, stigmate papilloso depresso coronatus. *Ovarium* biloculare, placentariis multiovulatis. *Capsula* calyce persistente accrescente inclusa, bilocularis, apice circumscissa, operculata, operculo coriaceo apiculata. *Semina* reniformia. *Embryo* arcuatus, subperiphericus.—Herbæ *perennes in Europa orientali et Asia indigenæ*, foliis *alternis*, floribus *paniculatis*, corolla *regulari*. *Decaisne*, sub *Belenia*.

Physochlaina *grandiflora*; glanduloso-pubescens ramosa, foliis ovatis acutis petiolo subtriplo longioribus, paniculis terminalibus foliosis, floribus nutantibus, calyce florifero brevi-campanulato fructifero cylindraceo, corolla paululum curvata (flavo-viridi) infundibuliformi-campanulata venis picta, staminibus corollam æquantibus, stylo exserto, stigmate depresso-capitato.

Our garden is indebted for the seeds of this plant to Lieut. Strachey, who gathered them on the plains of Thibet, at an elevation of 15,000 feet above the level of the sea. I was at first disposed to refer it to the *Belenia prælta*, Dene. in Jacquemont's Voy. vol. iv. p. 116. t. 120, but that figure will hardly justify such a conclusion. The flowers are not half the size, their calyx is longer and narrower, and the fructiferous calyx is too much elongated and curved. Be that, however, as it may (and the figure is evidently made from a very indifferent specimen), the genus, if really a good one, intended to include *Hyoscyamus orientalis* and *H. physalodes*, should bear the name we have here adopted, given by Mr. Don to the section of *Hyoscyamus* to which those species belong.

Descr. *Root* probably perennial. *Stem* herbaceous, a good deal branched, terete, clothed everywhere, as well as the foliage, with glandular down. *Leaves* alternate, petiolate, ovate, acute,

penninerved, thrice as long as the *petiole*. *Panicle* terminating the branches, leafy. *Pedicels* elongated. *Floral leaves* gradually passing into *bracteas*. *Flowers* drooping. *Calyx* shortly campanulate, sharply five-toothed, in fruit much enlarged and elongated, becoming tubular or cylindrical, and then erect. *Corolla* more than an inch long, slightly curved downwards, between campanulate and infundibuliform, the mouth spreading, the lobes short, rounded, obtuse; the colour is yellow-green with a slight tinge of purple, marked with longitudinal purple lines, connected by oblique transverse ones. *Stamens* five, nearly equal. *Filaments* as long as the corolla or nearly so. *Anthers* large, pale yellow, ovate. *Ovary* subrotund, the upper portion, or that which will form the lid, contracted at its insertion. *Style* filiform, flexuose, longer than the corolla, slightly thickened upwards. *Stigma* dilated and umbilicate, depressed. *W. J. H.*

Cult. A strong-rooted, hardy, herbaceous plant, thriving in any kind of garden-soil. It may be increased by dividing the roots, which should be done in autumn or early in the spring. *J. S.*

Fig. 1. Section of a calyx, showing the pistil:—*magnified*.

1.

Tab. 4601.

PENTSTEMON Wrightii.

Mr. Wright's Pentstemon.

Nat. Ord. Scrophularineæ.—Didynamia Angiospermia.

Gen. Char. (*Vide supra*, Tab. 4318.)

Pentstemon (§ Cepocosmus, *Benth.*) *Wrightii*; erectus glaber glaucus inferne ramosus, foliis remotis inferioribus oblongis in petiolum attenuatis, supremis oblongo-ovatis basi subcordatis sessilibus, racemis elongatis bracteatis, pedicellis oppositis solitariis bifloris, calycis brevi-campanulati lobis ovatis patentibus tubo æquilongis, corollæ (intense roseæ) tubo superne ventricoso, limbo obliquo amplo lobis rotundatis patentibus subæqualibus.

This is a charming new *Pentstemon*, very distinct from any hitherto known to us, and which will prove a great acquisition to our gardens. It was discovered by Dr. Wright in Texas, and has been distributed among the very interesting dried collections of that gentleman, without any name, by Dr. Engelmann, who, we trust, will not object to its bearing the name of its discoverer. It flowers in June and July.

Descr. *Root* perennial? *Stem* erect, including the panicle a foot and a half or two feet high, terete, branching from the base, and there rather woody, purplish-brown and scarred from the fallen leaves, the rest glaucous, and bearing distant pairs of opposite very glaucous *leaves*, few in number, spathulate, that is oblong or obovate, entire, tapering into a stalk, all except the uppermost pair at the base of the panicle, which are ovate, oblong, quite sessile, truncated or even cordate at the base. From above these the elongated *panicle* arises, a foot or more long, bearing several pairs of small ovate bracteas, from the axil of each of which is seen a 2-flowered *peduncle*, with a small ovate *bracteole* at the base of each pedicel. *Flower* drooping. *Calyx* with minute, glandular hairs, shortly campanulate, the five acute entire segments spreading. *Corolla* deep rich rose-colour, slightly downy, the *tube* about an inch long, ventricose on the underside towards the mouth. *Limb* an inch broad, spreading

horizontally, cut to the base into five nearly equal rotundate lobes. *Stamens* included. *Filaments* quite glabrous, flexuose. *Anthers* large, of two deep oval lobes. *Style* shorter than the longer filaments, thickened upwards, and clothed with long slightly deflexed hairs on the anterior side. *W. J. H.*

Cult. A fine species of *Pentstemon*, raised from seeds sent to the Royal Gardens last year. It appears to grow and flower freely, but we are not yet certain whether it is quite hardy. Like other species of the genus, it will probably be found to succeed best if a stock be kept in pots under a frame in winter, and planted out in the open ground in spring. It is increased by seeds, which it produces readily. *J. S.*

Fig. 1. Lower portion of the corolla with stamens and pistil:—*magnified.*

Tab. 4602.

CHRYSOBACTRON Hookeri.

Dr. Hooker's Chrysobactron.

Nat. Ord. Asphodeleæ.—Hexandria Monogynia.

Gen. Char. *Flores* racemosi, nunc dioici. *Flor. masc.* *Perianthium* corollinum, hexaphyllum; *foliola* patentia, æqualia, ovato-oblonga, obtusa, medio incrassata. *Stamina* 6, hypogyna; *filamenta* elongato-subulata, perianthio breviora, nuda; *antheræ* versatiles. *Ovarium* ovatum, acuminatum, trisulcatum, vacuum. *Flor. fœm.* *Perianthium* ut in fl. masc., sed foliolis post anthesin erectis, demum deciduis. *Stamina* 6, antheris incompletis. *Ovarium* late ovatum, profunde trisulcatum, triloculare, lobis dorso canaliculatis, loculis bi- rarius uniovulatis. *Ovula*, ubi 2, collateralia, funiculis brevibus infra apicem loculi angulo interiore suspensa. *Stylus* validus, erectus, teres. *Stigma* capitatum, parvum, obscure 3–6-lobum. *Capsula* ovata, trilocularis, loculicide trivalvis; valvæ coriaceo-submembranaceæ, intus medio septiferæ. *Semina* loculis plerumque bina, collateralia, triquetra, *testa* atra subcrustacea; *albumen* corneum; *embryo* axilis, paulo curvatus, albumine parum brevior: *radicula* incrassata.—Herba *speciosa*, *elata*, *perennis*, *Aucklandica et in insula Campbell Novaque Zelandia proveniens.* Radix *elongata*, tuberibus *elongatis fasciculatis donata.* Folia *late ensiformia*, *basi vaginantia.* Scapi *solitarii v. plurimi*, *pedales et ultra.* Flores *racemosi*, *aurantiaci.*

Chrysobactron *Hookeri*; foliis lineari-ligulatis acuminatis, racemis laxifloris, ovario obovato, capsula basi in stipitem brevem suffulta.

Chrysobactron Hookeri. *Colenso, in litt. Hook. Ic. Plant. t.* 817 (*specimen in fruit*).

The first species of the present genus (*C. Rossii*) was detected by Dr. Hooker in Lord Auckland's Islands, and it is figured and described in the 'Flora Antarctica.' It was named *Chrysobactron*, "in allusion to the magnificent racemes of golden flowers" which that species bears. We have the pleasure of representing here a second individual of the genus, far less showy indeed, from New Zealand, whence the roots were sent in a Wardian case by our valued friend Mr. Bidwill. Mr. Colenso detected it soon after. The former gentleman found it in the rich alluvial plain of the upper part of Wairu, Middle Island; the latter in the sides of watercourses, in the country between the Ruahine range and Taupo, plentiful. "It grows in great clumps in boggy places, and is said to cover the plain with a sheet of yellow when in

bloom. Some of the masses are three feet in diameter." A fruiting specimen from Mr. Bidwill is given in the 'Icones Plantarum' above quoted.

Descr. "*Root* with very large fleshy fibres." *Leaves* eighteen inches long, linear-ligulate, canaliculate, glaucous-green, striated, acuminated, rather indurated at the point, the base yellowish: the three or four outer ones, nearest the root, are reduced to brown scales. *Scape* quite leafless, a foot and a half to two feet and even thirty inches high, erect, terete, bearing at the top numerous golden-yellow *flowers* in a rather lax raceme. *Pedicels* erect, bracteated, *bracteas* ovate, with a subulate point rather shorter than the pedicels. *Perianth* of six oblong spreading sepals. *Stamens* six: *filaments* subulate, arising from the base of the sepals. *Ovary* obovate, with three furrows. *Style* subulate, rather longer than the ovary. *Capsule* oblong-obovate, mucronate, elevated on a short stipes, three-celled, six-seeded. *W. J. H.*

Cult. Living roots of this plant were received in 1848, but it was for some time doubtful whether we should succeed in cultivating it. This season, however, several plants have so far progressed as to produce flowers. We have hitherto kept it in a cool frame during winter, for though it comes from an elevated region in a high southern latitude, we fear it may not be sufficiently hardy to bear the severity of some of our winters. Its representative in Europe is the well-known genus *Asphodelus*. *J. S.*

Fig. 1. Flower. 2. Pistil:—*magnified.*

1

Tab. 4603.

AMOMUM Granum Paradisi.

Grains of Paradise Amomum; or Mellegetta Pepper.

Nat. Ord. Zingiberaceæ.—Monandria Monogynia.

Gen. Char. Calyx tubulosus, apice trifidus. *Corollæ tubus* brevis, limbi laciniæ exteriores laterales postica angustiores; interiores laterales nullæ; *labellum* maximum, explanatum. *Filamentum* complanatum, lateribus apiceque ultra antheram muticam productum, lobulis duobus auctum, lobo terminali bifido. *Ovarium* inferum, triloculare. *Ovula* in loculorum angulo centrali plurima, horizontalia, anatropa. *Stylus* filiformis, inter antheræ loculos receptus; stigma infundibuliforme. *Capsula* sæpius baccata, trilocularis, loculicido-trivalvis. *Semina* plurima, arillata.—Herbæ *inter tropicos veteris orbis indigenæ, species Americanæ dubiæ*; radicibus *articulatis, repentibus,* foliis *bifariis, membranaceis, vaginis fissis,* inflorescentia *radicali, spicata, laxe imbricata. Endl.*

Amomum *Granum Paradisi*; caulibus elongatis, foliis elliptico-lanceolatis tenuiter acuminatis rubro-marginatis, scapis brevissimis radicalibus bracteatis subtrifloris, corollæ labello amplo rotundato plicato-undulato.

Amomum Grana Paradisi. *Linn. Sp. Pl. v.* 1. *p.* 2? *Pereira, Elem. of Mat. Med. v.* 2. *p.* 1130. *fig.* 234 (*capsules*).

Amomum grandiflorum. *Sm. Exot. Flora, v.* 1. *t.* 111.

Amomum exscapum. *Sims, in Ann. of Bot. v.* 1. *p.* 248. *t.* 13.

Amomum Afzelii. *Roscoe, in Linn. Trans. v.* 8. *p.* 354.

Whether or not this be what is intended as the *Amomum Grana Paradisi* of Linnæus ("scapo brevissimo ramoso") will perhaps for ever be a doubtful question. But of this we are certain, that our plants in the Royal Gardens, here figured, were raised from seeds of capsules sent to us as Malagetta Pepper or Grains of Paradise, from Sierra Leone, by Mr. Young; and that these capsules correspond exactly with those figured in Dr. Pereira's admirable 'Elements of Materia Medica and Therapeutics,' vol. ii. p. 1130. f. 234, as "*Amomum Granum Paradisi* of Afzelius' Remed. Guineensis, vol. x. n. 1," and as *A. Grana-Paradisi*, Smith, in Rees. Cycl. vol. xxviii. art. *Melegetta*, as an inhabitant of the Guinea coast about Sierra Leone, we have not the smallest doubt. Equally certain it is, so far as can be judged from figures, that it is the *A. grandiflorum* of Smith in 'Exotic

Botany,' tab. 111, "raised from seeds gathered by Afzelius at Sierra Leone:" nor do we hesitate to pronounce, notwithstanding some trifling discrepancies, that it is also the *A. exscapum* of Dr. Sims, figured and described in the first volume of 'Annals of Botany,' p. 548. t. 13, from specimens raised by Mr. Loddiges of Hackney, the seeds of which were sent by Professor Afzelius from Sierra Leone. *A. Afzelii*, Roscoe, is acknowledged to be identical with the *A. exscapum*, Sims. Beyond the above synonyms we dare not go. Linnæus we quote with doubt; for that author refers to Rheede's figure in the 'Hortus Malabaricus,' and gives Madagascar, as well as Guinea, for the native country of the species; to which Willdenow adds Ceylon.

The term *Melegueta* or *Mellegetta Pepper* has been applied to several Zingiberaceous plants, and to this among them. "It has usually," Dr. Pereira observes, "been considered synonymous with the terms '*Grains of Paradise* and *Guinea grains*.' Melegueta Pepper is said to have been known in Italy before the discovery of the Guinea coast by the Portuguese in the fifteenth century. It was brought by the Moors, who used to cross the region of Mandingha and the deserts of Libya, and carry it to Mundi Barca (or Monte de Barca), a port in the Mediterranean. The Italians, not knowing the place of its origin, as it is so precious a spice, called it '*Grana Paradisi*.' Another kind of *Amomum*, known as *Melegueta Pepper*, is the *A. Melegueta*, Roscoe, figured in that author's work on Scitamineous Plants. The flowers are small, the leaves long and narrow, and the fruits very large and pear-shaped. The fruits of both kinds seem to be indifferently employed in lieu of pepper in Western Africa, and are esteemed the most wholesome of spices, and generally used by the natives to season their food. The principal consumption of Grains of Paradise in Europe is in veterinary medicine, and to give an artificial strength to spirits, wine, beer, and vinegar. Although the seeds are by no means injurious, an act was passed in 56 Geo. III. c. 58, that no brewer or dealer in beer shall have in his possession or use Grains of Paradise, under a penalty of £200 for each offence; and no druggist shall sell it to a brewer, under a penalty of £500 for each offence."—See *Pereira*. Our plants flower in the stove in May, and make a handsome appearance.

Descr. *Roots* creeping, or rather they increase by aggregation of the tuberous knobs of a red colour, from which the stems arise. *Stems* sterile, two to three feet high, very red at the base, and dull purplish-red above from the long sheathing petioles of the foliage. *Leaves* sparse, small, and remote below, more approximate above, yet distant, spreading obliquely, not horizontally, elliptical lanceolate, with a very narrow long, almost setiform

acumen, obliquely penninerved, full green above, paler beneath, the margin red. *Petiole* auricled at the top. *Scape* reduced, very short, clothed with lax erect scales, red below and short, much elongated, striated, and membranaceous, and reddish-yellow above; these embrace the flowers, and persist with the fruit. *Calyx* (Endl.) or *exterior perianth* forming a long tube below, cut into three oblong, erect, membranaceous segments, white, tinged with yellow and rose, embracing the tube of the inner series, which is reduced to one large segment expanding into a rotundate pure white, plicately undulated *limb*, yellow at the base. *Filament* broad, bearing one very large ovate pointed *anther*, pointing downwards, deeply two-lobed, above which the filament is prolonged into one short ovate erect segment and two lateral spreading linear-oblong ones. On each side the base of the filament we find two subulate processes. *Ovary* inferior, cylindrical, a little downy. *Style* long, filiform, passing between the lobes of the anther, and terminating there in an infundibuliform stigma. *Capsules* admirably represented in Pereira, two or three in a cluster at the end of the short scaly stipes, scarcely two inches long, powerfully aromatic, ovato-lanceolate, acuminated, brown, striated (as if shrivelled), terminated by withered portions of the perianth. *Seeds* very hot and acrid. *W. J. H.*

Cult. This plant, being a native of the tropics, requires a warm stove, and grows freely in a mixture of light loam and peat-soil. Like others of the family to which it belongs, it has a season of rest, which is indicated by the stem and leaves beginning to fade; water should then be sparingly given. In spring it should be repotted, in fresh soil. It is readily increased by division of the roots. *J. S.*

Fig. 1. Flower from which the segments of the perianth are removed:—*magnified.*

3.

2.

Reeve & Nichols, imp.

Tab. 4604.

NYMPHÆA ELEGANS.

Elegant Water-Lily.

Nat. Ord. Nymphæaceæ.—Polyandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4257.)

Nymphæa *elegans*; foliis suborbicularibus repando-subdentatis basi profunde usque ad petioli insertionem bifidis nigro-maculatis lobis rectis sinu angusto subtus purpureis, sepalis 4 fusco-lineatis, petalis albis purpureo-cæruleo tinctis, staminibus in phalangibus sub-15 collectis, filamentis exterioribus subpetaloideis, antheris exterioribus appendiculatis, stigmate sub-15-radiato.

I can nowhere find a *Nymphæa* described, corresponding with this, which has been discovered in New Mexico by Dr. Wright, from whose seeds our plant was reared in the Royal Gardens of Kew. Its nearest affinity, perhaps, is *N. ampla*, Bot. Mag. t. 4469. Our plants flowered in the early summer in the tank of the tropical aquarium. The blossoms are not only elegant in form and colour, but fragrant also. It will be difficult to say to which of the divisions of De Candolle this will belong. It is very different from any of the section "*Cyaneæ*," though its purplish-blue tint would indicate an affinity with that groupe. One of the most remarkable circumstances in the flower of this plant consists in the arrangement of the stamens in (apparently) as many phalanges as there are lobes to the stigma. I had not the opportunity of observing if, at a late period of inflorescence, they separated.

Descr. *Root* unknown to me. *Leaves* floating, about six inches long, and four and a half or five broad, thus nearly orbicular, plane, the margin sinuated and subdentate; the upper surface dark green, the under purple, especially towards the margin; both sides spotted and streaked with black, the under side most spotted; the base of the leaf is cut nearly to the petiole into two straight or slightly diverging rather acute lobes, the sinus long and narrow. *Petiole* terete, smooth. *Scape* terete,

smooth, rising erect, almost a foot above the water, and bearing a fragrant *flower* at the top, nearly the size of our common white water-lily (*Nymphæa alba*). *Calyx* of four, spreading, oblong, obtusely acuminated *sepals* of a pale green colour, yellowish at the base, marked with numerous short streaks of deep brown. *Petals* twelve to fourteen, nearly of the same shape as the sepals, uniform or nearly so, yellowish-white, tinged with purplish-blue. *Stamens* numerous, deep yellow, inner ones short and without any appendage to the anther, outer ones much larger; the *filaments* broad and subpetaloid; the *anther* terminated with a callous white point. The stamens in the fully expanded flower approximate in phalanges or bundles, apparently corresponding in the number of the bundles with the rays of the stigma. *Ovary* turbinate, bearing the petals. *Stigma* deep yellow, downy, about fifteen-rayed, under each ray a blunt glabrous tooth projects. *W. J. H.*

Cult. A new species of water-lily, raised from seeds last year. It was placed in the tropical aquarium, and soon attained strength sufficient to enable it to bloom during the present summer. Being a native of Mexico, it might probably flower in the open-air aquarium, but in winter it will be advisable to place the roots beyond the reach of frost.

Fig. 1. Outer stamen. 2. Inner ditto. 3. Pistil:—*magnified*.

3.

4.

2.

Tab. 4605.

BROWALLIA Jamesoni.

Yellow-flowered Browallia.

Nat. Ord. Scrophularineæ.—Didynamia Angiospermia.

Gen. Char. (*Vide supra*, Tab. 4339.)

Browallia *Jamesoni*; fruticosa, molliter pubescens, foliis breviter petiolatis ovatis rugosis, floribus subcorymboso-cymosis, pedicellis calyce vix longioribus, calyce ovato-tubuloso obliquo laciniis brevibus, corollæ (flavæ) laciniis tubo ampliato incurvo dimidio brevioribus. *Benth.*

Browallia Jamesoni, *Benth. in De Cand. Prodr. v.* 10. *p.* 197.

It was our privilege to publish a handsome new *Browallia* in a recent volume, at Tab. 4339 of this work, (*B. speciosa*) remarkable for the large and handsome blue flowers. We have now the satisfaction of giving another species of the genus, only recently described in De Candolle by Mr. Bentham, no less remarkable from the yellow colour of its rather large inflorescence. It is a native of New Grenada, between Mivir and Naranfus, whence it has been sent (together with seeds from which our plants were raised) by Dr. Jameson, and from Loxa by Mr. Hartweg (*n.* 818 of his collection). The species is a very distinct one. Our drawing was made from a plant which flowered in the greenhouse at Druid's Stoke, near Bristol, the beautiful residence of Hector Munro, Esq., in June 1851, and where alone, so far as we know, the flowers have been produced.

Descr. An erect, rather straggling *shrub*, 4–6 feet high; the *branches* obscurely angular, downy. *Leaves* alternate, almost exactly ovate, on very short *petioles*, very obtuse, slightly downy, entire, penniveined, the veins united by transverse sunken veinlets, giving a wrinkled appearance to the upper surface of the leaf, which is moreover glossy. *Panicle* corymbose, terminal, bracteated; *bracteas* resembling small leaves. *Pedicels* shorter than

the flowers. *Calyx* rather large, oblong-ovate, tubular, 5-lobed; *lobes* erecto-patent. *Corolla* large, deep fulvous-yellow; the *tube* paler, twice as long as the calyx, inflated below the limb: *limb* large, spreading horizontally, five-lobed, veined: *lobes* rounded, very obtuse, the lower one larger than the rest. *Stamens* four, reaching a little beyond the mouth of the tube, their structure as in the genus. *Ovary* ovate, hairy at the apex, surrounded at the base by a thick *annulus*. *Style* as long as the tube of the corolla, a little thickened, and curved upwards. *Stigma* large, two-lipped. *Capsule* four-lobed. *W. J. H.*

Cult. A twiggy, soft-wooded plant, in its native country attaining a height of from four to six feet. Being from the elevated region of New Grenada, it is sufficiently hardy to succeed as a greenhouse plant, but in winter it requires a temperature rather warmer than that of the airy greenhouse; which, however, must not stimulate it into growth before the spring. A mixture of light loam and peat-soil suits it. It will probably be found to grow freely during summer in the open air, if planted against a wall or in a sheltered situation. It increases freely by cuttings. *J. S.*

Fig. 1. Pistil. 2. Ovary:—*magnified.* 3. Calyx and fruit:—*natural size.* 4. Capsule bursting open:—*magnified.*

Reeve & Nichols, ir

EPIDENDRUM VERRUCOSUM.

Warted Epidendrum.

Nat. Ord. Orchideæ.—Gynandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4107.)

Epidendrum (Encyclium, § labello trilobo) *verrucosum*; pseudobulbis ovatis, foliis ensiformibus obtusis, scapo pedicellis ovariisque verrucosis, racemo nutante, sepalis petalisque lineari-lanceolatis acuminatis, labelli trilobi lobis lateralibus subfalcatis acutis nanis intermedio ovali crenulato basi serrato bilamellato, columna alis 2 nanis truncatis. *Lindl.*

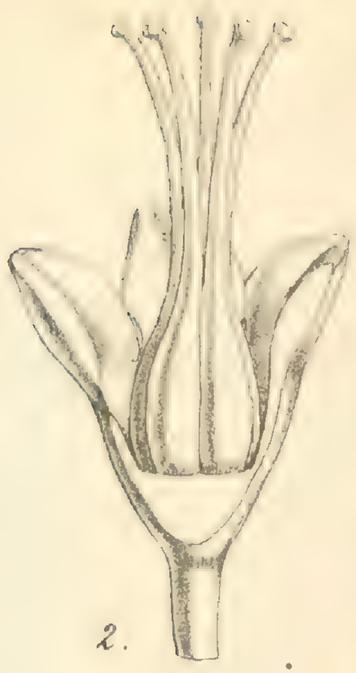
Epidendrum verrucosum. *Lindl. Bot. Reg.* 1844. *t.* 51.

A very lovely species of *Epidendrum* of the Encyclia-groupe, fragrant as well as handsome, a native of Mexico, imported from that country by Messrs. Loddiges. The very fine specimen here represented flowered in the Royal Gardens of Kew in July 1851.

Descr. *Pseudo-bulbs* ovate, clustered, the flowering ones narrow-ovate, smooth, dark green, and more or less sheathed with scales or the fibrous remains of them; the older ones larger, paler coloured, broader, wrinkled, and naked. *Leaves* two, from the apex of the bulb, from ten inches to a foot long, broad-linear or loriform, one-nerved, obtuse. From the axil of these leaves the *scape* arises, as thick as a goose-quill and warted, except where it is covered with the sheathing bracteas, when nearly as long as the leaves gracefully drooping, and bearing a branching *panicle* of large lilac and white *flowers*. *Branches* and *ovary* also minutely warted. *Sepals* and *petals*, each two inches long, linear-lanceolate, uniform, spreading horizontally. *Lip* more than two inches long, pendent, three-lobed; lateral lobes oblong, subfalcate, half-embracing the column; middle lobe obovate, subrhomboid, very large, acuminulate, streaked and lined with dark red, the margin crenulate, the *disc* white, bearing two lamellæ. *Column* as long as the lateral lobes of the lip, deep

lilac, with a short white wing on each side beneath the anther. *Anther-case* hemispherical. *W. J. H.*

Cult. This *Epidendrum* is similar in habit and manner of growth to *E. linearifolium*, figured at Tab. 4572, but is a much larger and more robust species. It grows freely in the tropical Orchid-house. It may be planted in loose turfy soil, in pots half-filled with drainage materials; and it is advisable to raise the soil a little above the margin of the pot, to prevent it from remaining too long wet, which will sometimes happen from the necessary watering and syringing, and which is especially detrimental in winter. *J. S.*



2.

Reeve & Nichols, imp.

Tab. 4607.

GRAMMANTHES chloræflora.

Yellowwort-flowered Grammanthes.

Nat. Ord. Crassulaceæ.—Pentandria Pentagynia.

Gen. Char. *Calyx* campanulatus, 5-fidus, erectus. *Corolla* gamopetala, tubo calycis longitudine, lobis 5 rarius 6 ovalibus expansis. *Stamina* 5–6 lobis alterna, tubo inserta et inclusa. *Squamæ* nullæ. *Carpella* 5.—Herbæ *annuæ*, *oppositifoliæ*. Folia *ovato-oblonga*, *remota*, *plana*, *sessilia*. Flores *cymoso-corymbosi*. *De Cand.*

Grammanthes *chloræflora*; foliis ovato-oblongis.

Grammanthes chloræflora. *Haw. Revis. p.* 18 (*sub. nom. gen.* Vauanthis). *De Cand. Prodr. v.* 3. *p.* 392.

Grammanthes gentianoides? *De Cand. Prodr. v.* 3. *p.* 393.

Crassula gentianoides? *Lam. Dict. v.* 2. *p.* 175.

Crassula retroflexa. *Thunb. Cap. p.* 282. *Ait. Hort. Kew. ed.* 2. *v.* 2. *p.* 194.

Crassula dichotoma. *Linn. Amœn. v.* 6. *p.* 86. *Ait. Hort. Kew. ed.* 1. *v.* 1. *p.* 392.

Grammanthes, a genus properly separated from *Crassula*, is so named from its having the appearance of a letter (V inverted) inscribed upon the base of the segments of the corolla. Two species are described by De Candolle, but with great doubts as to their being really distinct. We have combined them: for the form of the leaf, at any rate, seems to afford no character; and there is no reason to think the flowers are blue in the *G. gentianoides*, as described by Lamarck. Ecklon and Zeyher have given three additional species.

Our present plant is certainly a very pretty thing, a native of the Cape of Good Hope, and, though annual, remaining in beauty a considerable length of time, and may be safely treated as a hardy annual. Planted out in tufts or patches, in the early summer, it is seen covered with flowers of two colours: when they first expand they are pure yellow, with a blood-coloured V, gradually becoming deep tawny, or almost wholly blood-colour, with a yellow eye.

October 1st, 1851.

Descr. An annual, humble, tufted *plant*, everywhere glaucous. *Stems* much branched dichotomously, slender. *Leaves* opposite, exactly ovate or ovate-oblong, obtuse, thick and fleshy, grooved or concave above. *Flowers* generally in pairs, forming a leafy *corymb*. *Pedicels* varying in length, often shorter than the calyx. *Calyx* campanulate, fleshy, glaucous, with five slightly patent, ovate *lobes*. *Corolla* with a *tube* as long as the calyx; *limb* large, spreading, of five ovate segments, bright yellow, with an inverted letter V of a deep blood-colour on each: finally, the whole limb becomes deep blood-colour, paler and orange towards the apices. *Stamens* five. *Filaments* inserted in the tube of the corolla, and alternate with the laciniæ, included. *Anthers* oblong. *Ovaries* five, elongated, narrow, naked at the base, tapering above into a *style* as long as the tube of the corolla. *Stigma* globose. *W. J. H.*

Cult. This pretty annual requires to be raised under glass. The seeds should be sown about the middle of March, in a shallow pot or seed-pan filled with light soil, and placed in a close frame. Being very minute, they need no covering of soil; a slight pressure with the back of the hand is sufficient to fix them. In watering, care must be taken not to disturb the surface of the soil and displace the germinating seeds by the force of the water. In order to prevent this, it is advisable to place the pot in a pan, with just sufficient water in it to keep the surface of the soil moist. After germination the young plants must not be over-watered, for, being of a succulent nature, they are liable to damp off. When they are of sufficient strength they should be thinned out into other pots, or planted in patches in the open border about the end of May. *J. S.*

Fig. 1. Portion of corolla and stamens. 2. Portion of calyx and pistils:—*magnified.*

Reeve & Nichols, imp

Tab. 4608.

CAMPTOSEMA RUBICUNDUM.

Ruby-flowered Camptosema.

Nat. Ord. Leguminosæ.—Diadelphia Decandria.

Gen. Char. Camptosema, *Hook. et Arn.* (Bionia, *Mart.*) *Calyx* minute bibracteolatus, campanulatus, subæqualiter 4-fidus; lobis ovatis, acuminatis, superiore latiore. *Corollæ petala* æqualia, obtusa, longe unguiculata; vexillo et carina basi longiuscule deorsum bi-, alis uni-calloso-dentatis. *Vexillum* reflexum, ovato-oblongum; alæ anguste oblongæ; carina basi fere ad summum bicops, elliptico-oblonga. *Stamina* diadelpha (9 et 1), corollam subæquantia. *Pistillum* corolla longius. *Germen* longe stipitatum, pubescens, 8–10-ovulatum. *Stylus* subulatus, glaber, germine longior, rectiusculus. *Stigma* parvum, obtusum. *Legumen* lineari-oblongum, sericeo-pubescens, polyspermum, stipite (ut in germine) calycem æquante, stylo subulato longe acuminatum.—Frutex *volubilis glaber Brasiliæ australis.* Folia *uni- v. trifoliolata*; foliola *basi bistipellata.*

Camptosema *rubicundum*; scandens fruticosum glabrum, foliis trifoliolatis, foliolis ellipticis apice retusis intermedio longe petiolulato, racemis compositis axillaribus folio multoties longioribus, pedicellis calycem vix æquantibus.

Camptosema rubicundum. *Hook. et Arn. in Bot. Misc. v.* 3. *p.* 201. *Walp. Repert. v.* 1. *p.* 761, *and v.* 5. *p.* 532.

Kennedya splendens. "*Cat. Hort. Bollwill. et Mulhaus.* 1851. *Meisn. Plant. Preiss. v.* 1. *p.* 89 (*in nota*). *Walp. Repert. Bot. v.* 5. *p.* 530."

A very handsome climber, long ago described from dried specimens in the 'Botanical Miscellany,' and for some time cultivated in Germany, and since in England as "*Kennedya splendens.*" It was so named, as we learn from Mr. Bentham, by Meisner, who cautiously observes, "Originis ignotæ;" while Dr. Walpers confidently says, "Hab. in Nova Hollandia." It has the habit of a New Holland *Kennedya*, but it is a native of southern Brazil and the adjacent Argentine provinces. It is only lately that, being trained immediately under the glass of the Palm-stove, it has yielded flowers with us. The racemes remind one of those of *Laburnum* or of *Wistaria Sinensis*, but they are of a deep ruby-red colour.

October 1st, 1851.

Descr. A climbing *shrub* of great length; the older portions of the *stem* as thick as one's finger, and reticulated, as it were, with pits or hollows in the oblong areoles. Young leafy *branches* slender, terete, herbaceous, glabrous. *Leaves* distant, on long petioles, trifoliolate; *leaflets* petiolulate, oblong or oblong-elliptical, retuse, glabrous, glaucous beneath. *Racemes* on rather long *peduncles*, compound, eight to ten inches in length, drooping, many-flowered. *Calyx* with two small *bracteas* at the base, tubular-campanulate, somewhat two-lipped and irregularly four- to six-lobed. *Petals* of the corolla deep ruby-red, nearly equal. *Vexillum* partially reflexed, ovate, clawed, with two blunt teeth at the base of the lamina. *Alæ* and *carina* oblong, clawed, each petal with a blunt tooth at the base of the lamina. *Stamens* diadelphous (9 and 1). *Ovary* linear, on a long stipes, and tapering into a subulate *style*. *Legumen* three inches long, stipitate, compressed, downy, acute. *W. J. H.*

Cult. A stove-climber, well adapted for training up rafters or on trellis-work, and which grows freely, especially if planted in a bed of good rich soil. Where there is not sufficient room for it to extend, it may be treated as a pot-plant, and trained upon a trellis fixed to the pot; but we have not found it, either way, to flower very readily. It may be increased by cuttings, placed in heat under a bell-glass. *J. S.*

Fig. 1. Vexillum. 2. Ala. 3. Carina. 4. Stamens surrounding the pistil. 5. Pistil:—*all more or less magnified.* 6. Legumen:—*natural size.*

Reeve & Nichols, imp

Tab. 4609.

RHODODENDRON Championæ.

Mrs. Champion's Rhododendron.

Nat. Ord. Ericaceæ.—Decandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4336.)

Rhododendron *Championæ*; foliis lanceolatis brevi-anguste acuminatis reticulatis planis supra glabris margine costa nervisque subtus piloso-scaberrimis, ramulis junioribus petiolis pedunculis calycibus lineari-subulatis fructibusque pilis longis glandulosis rigidis hispidis, corollis reticulatis limbo patente profunde 5-lobo, bracteis viscosissimis.

We know from experience that there is no surer way of having a new and beautiful plant introduced to our Gardens, than by publishing a figure and giving its locality. Hence we are induced, as upon some former occasions in this work, to exhibit a species not yet in cultivation, but for the accuracy of the figure of which we can vouch, by a comparison of the drawing of a Chinese artist with native specimens; both the one and the other being also accompanied by notes drawn up on the spot, and sent us by Captain Champion of the 95th Regiment, who made extensive collections of plants in Ceylon, and afterwards in Hong-Kong. In compliment to his amiable and accomplished lady, whose partiality for plants equals that of her husband, and who accompanied him on many of his botanizing excursions, we have named the species. Captain Champion considered it allied to *R. formosum*, Wall., from Khasya, figured in our Tab. 4457; and so it is in some respects, but abundantly distinct in the form and vestiture of the leaves, in its large glutinous bracts, in the form of the calyx, in the ovary and fruit, and especially in the copious, long, glandular *bristles* of the branchlets, petioles, peduncles, calyx, and fruit. It was found by Captain and Mrs. Champion, growing abundantly among rocks, in a ravine at Fort Victoria, Hong-Kong, April 28, 1849.

Descr. A *shrub* nearly seven feet high; *branches* terete, dichotomous; younger ones clothed with long, spreading, glandular

bristles. *Leaves* much confined to the apex of the branches, shortly petioled (petiole glandular-bristly), lanceolate, shortly acuminate, reticulated, plane at the margin, dark green above, rather rusty-coloured beneath, the margin and costa and veins and veinlets clothed beneath and rough with short, harsh, bristly hairs. *Flower-buds* at first enclosed in a *strobilus* of large, imbricated, very glutinous, deciduous *bracteas*. *Umbels* four- to six-flowered. *Peduncles* hispid with glandular hairs. *Calyx*, especially the margins, equally hispid, deeply cleft to the base into four erect, almost linear-subulate, rather long segments or sepals. *Corolla* four inches across, *tube* rather short, campanulate, white. *Limb* four inches across, deeply cut into five obovate-oblong, obtuse, unequal-veined segments, the upper one the broadest: the ground-colour in our figure is white, the lobes, especially the apex and margins, are tinged with delicate rose-colour. But there is another state of the flower described by Captain Champion as the more usual colour, "delicate white, the upper lip pale yellow towards the centre, and copiously dotted with ochre." *Stamens* ten. *Filaments* much protruded, slightly curved upwards. *Style* equalling the stamens in length. *Stigma* a depressed disc. *Capsule* five- to six-celled, elongated, nearly two inches long and three lines wide, cylindrical, straight, clothed with glandular bristles, "dehiscing from the base upwards, but remaining attached to the central axis." *W. J. H.*

Cult. This *Rhododendron* is not yet to be seen in a living state in this country; but, as the seeds of *Rhododendrons*, like most of the *Ericaceæ*, do not suffer much during their transmission from distant countries, we hope we shall soon have another added to the many new species lately raised by us from the seeds collected by Dr. Hooker in Sikkim-Himalaya. *J. S.*

Fig. 1. Capsule:—*natural size*.

We gladly occupy an otherwise vacant space by some notes of Captain Champion on the other *Ericaceæ* (including *Vaccinieæ*) of Hong-Kong.

Of ***Azaleas*** **the best-known species are—**

1. *A. Indica*, var. *phœnicea*, which is of common occurrence in Hong-Kong in ravines. It flowers early in spring, and towards March appears in great beauty about waterfalls, by the side of streams, and on rocks or mountains, especially towards the eastern side of the island.

Still more common is the

2. *Azalea squamata*, one of Mr. Fortune's species, producing a few flowers early in winter, but bursting into luxuriant blossom when the fogs and humid

atmosphere about February and March have set in. Its [illegible] look well at a distance, but the shrub, being then nearly destitute of leaves, does not on near approach the gay appearance which the [illegible] presents.

On the Black Mountains grows a third species, new to Hong-Kong, but previously described by Mr. Fortune, from more northern China—the

3. *A. ovata*, of Dr. Lindley, I believe: it there flowers in March with *A. Indica* and *A. squamata*. It has almost rotate flowers, white with dark purple specks on the centre and adjoining lobes.

4. *Azalea*, sp. nov., *myrtifolia* (quite distinct from *A. ovata*). A shrub 4–5 feet high, much branched; twigs longer than in *A. squamata*, and shorter than in *A. Indica*, quite smooth, cinereous, and striated with silver or pink-brown. Leaves alternate, crowded towards the extremities of the branchlets, short-petioled, from ovate to oblong or slightly rhomboid (largest 1 inch long by 6 lines broad), usually slightly emarginate at apex, with the midrib often prolonged into an acumen, quite smooth, bright green above, glaucous or pale beneath, and grossly reticulately veined. Flowers terminal, solitary or in pairs, from an elongate, ovate whorl of yellowish, or slightly glutinous, permanent scales; these scales ovate, smooth. Flowers in bud campanulate. Corolla, when expanded, 1 inch 2 lines to $1\frac{1}{2}$ inch in diameter, almost rotate, and cleft to near the base. Segments five, oblong, two upper slightly largest, pure white, the three lower with dark violet specks. Stamens five. Filaments hairy. Anthers opening by terminal pores. Style long, curved. Stigma clavate and ten-lobed at the apex. Calyx and pedicel pinkish, glutinous, puberulous, the former small. Capsule five-celled, above three lines in length, globosely ovate.

Hab. Black Mountain, Hong-Kong, on rocks with *A. squamata* (Lind. !) and *A. Indica* (L.), March 1849, when it was first seen by Lieut.-Col. Eyre of the Royal Artillery.

1. *Enkyanthus reticulatus* is a beautiful shrub, and its branches, detached from the stem, continue in blossom for a long period if placed in water. It blooms about Christmas, and is much used by the Chinese for ornamenting their dwelling-houses.

The only remaining plants of the family to be noticed are an arboreous

1. *Vaccinium*, with white flowers, of common occurrence in the woods of the Happy Valley.

2. *Vaccinium*, sp. nov. near *V. bracteatum* (Thunb., a Japanese species), but differing in the racemes being shorter (1 to $1\frac{1}{2}$ inch long) and not secund. Racemes axillary, shorter than the glabrous, acute, serrated leaves; bracteas lanceolate, bristle-serrated; pedicels furnished with one or two alternate, minute, awl-shaped bracteoles. Native of Hong-Kong, growing to a small tree. Flowers in July and August, and fruit in September. Branches smooth, angular while young. Corollas slightly bell-shaped, nearly cylindrical, white. Leaves evergreen. A pretty species. Calyx five-toothed. Limb of corolla with five short reflexed segments, scarce one-tenth part of the tube. Anthers of the ten stamens horned, but not spurred. Style the length of the corolla, linear. Berry five-celled, many-seeded, blue when ripe.

J. G. Champion.

Portsmouth, August 1851.

2.
3
1.

Tab. 4610.

GALEANDRA Devoniana.

Duke of Devonshire's Galeandra.

Nat. Ord. Orchideæ.—Gynandria Monandria.

Gen. Char. Perianthium patens, petalis sepalisque subæqualibus ascendentibus. *Labellum* infundibuliforme, indivisum v. obsolete trilobum, ecalcaratum, intus lamellis (4) auctum. *Columna* erecta, membranaceo-alata, clinandrio declivi. *Pollinia* 2, postice excavata, caudicula brevi glandulæ brevi divergenti-bilobæ adnata.—Herbæ *terrestres, et epiphytæ*, caulibus *foliatis*, racemis *terminalibus*. *Lindl.*

Galeandra *Devoniana*; caule erecto simplici tereti polyphyllo, foliis lanceolatis 3-nerviis, racemo sessili erecto multifloro, labelli lamina ovata obtusa crenulata lamellis 4 pone basin, antheræ crista carnosa rotundata pubescente. *Lindl.*

Galeandra Devoniana. *Schomb. in Lindl. Sert. Orchid. tab.* 37.

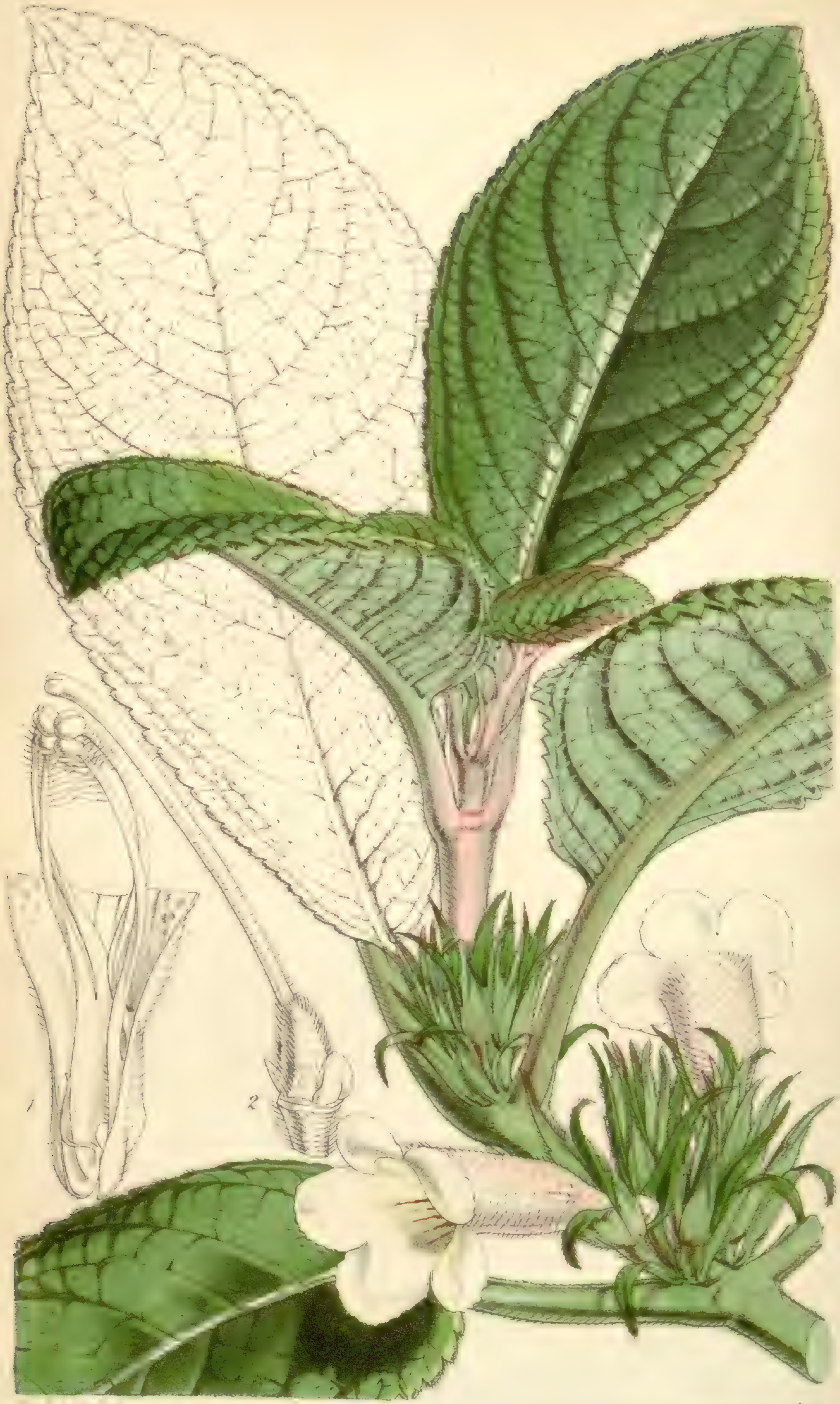
One of the finest and, we believe, in collections the rarest of South American Orchideæ. It was first detected by Schomburgk on the Rio Negro, a river which discharges itself into the Amazon; and Mr. Spruce has been so fortunate as to meet with it in the same locality, and we received a Wardian case from him in July, of the present year 1851, containing the flowering specimen in excellent condition, which we here represent. Schomburgk saw it growing five to six feet high, and in clusters or patches from ten to twelve feet in circumference.

Descr. *Stems* uniform to the base (no pseudo-bulbs), clustered, three to five or six feet high, scaly below, leafy above: *leaves* much sheathing at the base, linear-ensiform, acuminated, striated, glabrous, membranaceous. *Panicle* terminal, with few but large *flowers; branches* and *peduncles* bracteated. *Sepals* and *petals* spreading and slightly ascending, lanceolate, striated, darkish-purple, green at the margin and at the base externally. *Lip* very large, projecting, white, tipped and streaked with purple, broadly obovate, obscurely three-lobed, the sides meeting so as to form a lax tube around the column, intermediate or

spreading, deflexed, retuse: near the base within are four lamellæ. *Column* within the tube-like portion of the labellum, slightly winged at the margin. *Anther* with a large, downy, erect crest. *W. J. H.*

Cult. This is a tropical terrestrial Orchid, and therefore requires to be kept in a warm stove or Orchideous house. It may be potted in turfy peat-soil made rather firm in the pot, and well drained. In winter it must be so placed as not to suffer from excess of moisture, either in the atmosphere or in the soil. *J. S.*

Fig. 1. Column. 2, 3. Pollen-masses:—*magnified.*



Reeve & Nichols. imp.

Tab. 4611.

CENTROSOLENIA PICTA.

Painted-leaved Centrosolenia.

Nat. Ord. Gesneriaceæ.—Didynamia Gymnospermia.

Gen. Char. (*Vide supra*, Tab. 4552.)

Centrosolenia *picta*; foliis subæqualibus ovalibus obovatisve vèlutinis pictis (junioribus præcipue) crenato-serratis longe petiolatis, corollæ hirsutæ lobis obscure crenatis, staminum filamentis apice longe hirsutis.

Sent by Mr. Spruce, from the banks of the Amazon, to the Royal Gardens of Kew. It is remarkable for its beautifully painted, blotched or mottled leaves. Its flowers are large and white, destitute of the long fringe to the limb so characteristic of our *C. glabra* (Tab. 4552), and the opposite leaves are here nearly equal in size.

Descr. A procumbent and creeping *plant*, growing in dense tufts. *Stems* branched, cylindrical, fleshy, downy. *Leaves* opposite, on long, terete *footstalks*, oval or obovate, rather fleshy, crenato-serrate, unequal in size, hirsutely velvety on both sides, penninerved and reticulated, the *nerves* very prominent beneath; above, many of the leaves are blotched with brown and paler green. *Peduncles* axillary, clustered, single-flowered, bracteated, shorter than the calyx. *Bracteas* linear, acuminate. *Calyx* deeply five-partite, the segments lanceolate, acuminate, inciso-serrate, much shorter than the corolla. *Corolla* hirsute, large, white: the *tube* elongated, infundibuliform, running down at the base into a blunt spur: *limb* of five, spreading, rounded *lobes*, obscurely crenated at the margin. *Stamens* four, didynamous, included; *filaments* subulato-filiform, united into a membrane below, above clothed with long spreading hairs; *anthers* subglobose. *Ovary* oblong-ovate, somewhat curved, with two opposite glands at the base: one larger than the other and ovate. *Style* elongated, stout, columnar, downy: *stigma* somewhat capitate, notched. *W. J. H.*

Cult. A native of tropical America, and, like its allies, of a

succulent, decumbent habit. It grows freely in a warm and moist atmosphere, such as is suitable for tropical Orchids. A mixture of light peat-soil and leaf-mould suits it. The pot or pan must be well drained; and during winter, an excess of moisture must be guarded against. It increases readily from cuttings, which root quickly if placed in a warm frame, without the aid of a bell-glass. *J. S.*

Fig. 1. Portion of the lower part of the corolla, with stamens. 2. Pistil and hypogynous glands :—*magnified.*

Reeve & Nichols, imp.

Tab. 4612.

VACCINIUM Rollisoni.

Rollison's Whortleberry.

Nat. Ord. Vaccinieæ.—Decandria Monogynia.

Gen. Char. Calyx ovario adnatus, limbo libero 4–5-partito partitionibus dentiformibus, rarius integerrimo. *Corolla* campanulata, urceolata v. cylindrica, limbo 4–5-fido sæpius reflexo. *Stamina* corollæ lobis numero dupla, limbo calycis inserta, sæpe inclusa, interdum exserta; *antheræ* sæpius apice bifidæ, dorso bipartitæ aut muticæ. *Stylus* erectus, staminibus longior; *stigma* obtusum. *Bacca* calyce vestita, 4- aut 5-locularis loculis polyspermis, rarissime 10-locularis loculis monospermis.—Frutices *aut* suffrutices, *rarius* arbusculæ. Folia *sparsa*. Flores *axillares, gemini terni v. racemosi, bracteati.* Corollæ *albidæ aut coccineæ.*

Vaccinium (Muticæ) *Rollisoni*; erectum, glabrum, ramulis angulatis, foliis obovato-cuneatis brevissime petiolatis coriaceis sempervirentibus sæpe retusis nitidis, margine integerrimis subrecurvis oblique penninerviis reticulatis subtus pallidis, racemis terminalibus paucifloris bracteatis nunc bracteolatisque, bracteis longitudine pedicellorum, floribus nutantibus, corollis (coccineis) elongato-urceolatis, limbi lobis 5 recurvis.

From the collection of Messrs. Rollisons, Tooting Nursery, where it produced its rich scarlet flowers in August 1851. Introduced by their collector, who found it growing on the lava of the "Silent Volcanoes" of Java, on the highest land in the island. We have specimens of the same from Salak mountain, Java, from Mr. Thomas Lobb. It forms a handsome evergreen bush, with glossy Box-like leaves, and what is wanted in the number of flowers, is compensated by their beauty of colour. It does not appear to be anywhere described, either under *Vaccinium* or *Agapetes*. It is not *Agapetes microphylla*, Junghuns, for that has leaves three to four inches long.

Descr. A small *shrub*, two feet or more high, erect, glabrous, much branched, the *branches* erect, somewhat angular, slightly hairy, everywhere leafy. *Leaves* about three-quarters of an inch long, alternate, spreading, obovate, subcuneate, coriaceous, evergreen, glossy, entire, sometimes retuse, tapering below into a short *petiole*, penninerved, the nerves very oblique, reticulated,

especially when dry, paler and smoother beneath, almost glaucous. *Racemes* nearly sessile, always terminal, four- to six-flowered. *Pedicels* bracteate, a little hirsute, spreading, jointed at the insertion of the ovary, furnished at the base with a large, deciduous, membranaceous bractea, as long as the pedicel, and sometimes having a bracteole above the base. *Ovary* small, globose. *Flowers* drooping. Calycine *lobes* five, ovate, acute. *Corolla* rich scarlet, glabrous, urceolate, but tapering upwards to the contracted mouth: *limb* of five, reflected, short, acute lobes. *Stamens* ten; *filaments* broad-subulate, very hairy; *anthers* short, oblong, muticous, opening by two pores. *Style*, as well as the stamens, included, surrounded at the base by a large epigynous ring. *W. J. H.*

Cult. A neat evergreen shrub which requires to be treated as a green-house plant. In the summer it may be placed in the open air in a shady place. Like the rest of this tribe of plants, it thrives in light sandy peat-soil, and is readily increased by cuttings. *J. S.*

Fig. 1. Flower, pedicel, and bract. 2. Stamen. 3. Calyx and pistil:—*magnified.*

Fitch del et lith.

Reeve & Nichols, imp.

Tab. 4613.

POTENTILLA ambigua.

Three-toothed Himalayan Potentilla.

Nat. Ord. Rosaceæ.—Icosandria Polygynia.

Gen. Char. Tubus concavus : *limbus* 4–5-fidus, extus 4–5-bracteolatus. *Petala* 4–5. *Stamina* plurima. *Carpella* plurima, stylo laterali donata, in receptaculo procumbente persistente exsucco capitata. *Semen* appensum.—Herbæ *aut* suffrutices, foliis *compositis*, stipulis *petiolis adnatis*, floribus *albis*, *luteis*, *rariter rubris*. *De Cand.*

Potentilla *ambigua*; hirsuta, caule ascendente paucifloro basi fruticuloso, foliis ternato-palmatisectis, segmentis obovatis tridentatis, stipulis ovatis acutis integerrimis 3-dentatisve, bracteolis calycinis obovatis, petalis (luteis) obovatis calycem æquantibus (v. superantibus). *Camb.*

Potentilla ambigua. *Camb. in Jacquem. Ind. Or. Bot. p.* 51. *t.* 62. *Walp. Repert. Bot. v.* 2. *p.* 27.

A well-marked, hardy, Himalayan species of *Potentilla*, with a compact habit and large yellow flowers, produced abundantly during the summer months. Jacquemont detected it in fissures of rocks in Kanaor, near Rogui, elev. 9,000 feet, in about lat. 32°, long. E. 78½°, where it was likewise found by Capt. Henry Strachey; thence it appears to extend eastward through Nepal to Sikkim-Himalaya, where it was found by Dr. Hooker in woods at an elevation of from 12–13,000 feet above the level of the sea. Its nearest affinity is with *P. eriocarpa*, Wall.; but there the stem is scarcely leafy, and the leaflets are longer and much more divided.

Descr. From a woody perennial *root*, many closely-placed *stems* diverge: they are ascending, six inches to a foot long, frequently purple, leafy, clothed with soft silky hairs, as is, more or less, every part of the plant. *Leaves* on longish *petioles* (which have two large, ovate, usually entire *stipules* at the base), ternate; *leaflets* cuneato-obovate, trifid at the apex, of a firmish texture, glaucous beneath, the lateral ones sessile, the terminal one on a short petiolule. *Peduncles* slender, terminal, single-

flowered. *Flowers* large, yellow. *Calyx* with five large, obovate, spreading *bracteas*, glaucous beneath, entire. *Petals* large, rather obcordate than obovate. *Stamens* about twenty. *Receptacles* of the numerous ovaries distinct, very silky, subglobose. *Ovaries* also clothed with very long silky hairs. *W. J. H.*

Cult. A native of the elevated regions of the Himalaya, and sufficiently hardy to endure the cold of this climate during the last winter. Till it has stood the test of a severe winter, however, it may be desirable to keep a few plants in pots under protection, for, being of a suffruticose habit, it may probably suffer from severe frost. It is a free-growing species, increasing rapidly by its stoloniferous roots, and soon forming a large patch. It continues to flower until late in the autumn. *J. S.*

Fig. 1. Vertical section of a flower from which the petals are removed:—*magnified.*

Fitch del et lit

Reeve & Nichols, imp

Tab. 4614.

SPHÆROSTEMA PROPINQUUM.

Dr. Wallich's Sphærostema.

Nat. Ord. Schizandraceæ.—Diœcia Polyandria.

Gen. Char. Sphærostema, *Bl.* Kadsuræ *sp.*, *Wall.* — *Flores* unisexuales, monoici vel dioici. *Corollæ petala* 9–15, ordine subternario in series 3–5 alternantes imbricata, erecto-conniventia vel patentia, toro imo inserta, crassiuscula; seriei externæ cæteris plus minus magnitudine inferiora et tenuiora, sæpe inæqualia bracteolisque subconformia, calycina; omnia decidua.— Flores fœm. *Ovaria* plurima, toro conico insidentia, confertissima, ovata, obliqua, subgibbosa, unilocularia. *Ovula* duo, parietina, ex angulo centrali dependentia. *Styli* nulli; *stigmata* totidem atque ovaria, ad eorundem faciem extremam lateralia. *Carpella* numerosissima, in toro valde elongato carnoso spicatim disposita, distinctissima, subglobosa v. obovato-globosa, in stipitem crassum brevissimum plerumque attenuata, cæterum cum illis *Kadsuræ* quoad fabricam omnino conniventia. *Bl.*

Sphærostema *propinquum*; dioicum, foliis ovatis denticulatis acuminatissimis, pedunculis axillaribus solitariis fasciculatisve bracteolis sparsis tectis petiolo longioribus, staminibus omnibus receptaculo connatis.

Sphærostema propinquum. *Blume, Schizandr. p.* 14.

Kadsura propinqua. *Wall. Tent. Fl. Nep. p.* 11. *t.* 15.

We regret that we have only the male flowers of this interesting plant to represent; but that is of the less consequence since we have so good a representation of the fertile flowers and of the fruit in Dr. Wallich's excellent 'Tentamen Floræ Nepalensis Illustratæ,' above quoted. Our figure was taken from a plant that flowered in the stove of the Royal Gardens of Kew, in June 1851. Dr. Wallich, to whom we are indebted for our plants, discovered the species on Sheopore and other hills at Lankoo, Nepal. Dr. Hooker found it frequent at from 7–9,000 feet in Sikkim-Himalaya. It is a handsome and fragrant shrub: the natives eat the fruit, which consists of many berries attached to a receptacle: the latter elongates itself as the fruit advances to maturity, when the whole resembles a long bunch of red currants.

Descr. A much branching, twiggy, somewhat climbing *shrub*, glabrous. *Leaves* alternate, on short *petioles*, ovate,

much and finely acuminated, denticulate at the margin, penni-nerved, rather glaucous beneath. *Peduncles* longer than the petioles, axillary, single-flowered, solitary, or two to five or six in a fascicle, bearing several remote appressed acuminate bracteoles. Male *flowers* with nine *sepals*, arranged in threes; the three outer smaller and calyciform, the six inner petaloid, coriaceous, rotundate, spreading, pale yellow, corolloid. In the centre of the male flower is a globose, fleshy *receptacle*, pale yellow, with from twelve to sixteen short transverse clefts, forming so many blunt erect teeth, within each of which is situated a sessile *anther*, opening towards the centre by two longitudinal fissures, one in each cell.—Female *flowers*, according to Dr. Wallich, with *sepals* as in the male. *Ovaries* very small, numerous, fleshy, ovate, imbricated into a subglobose mass. *Style* none. *Berries* globose, fleshy, numerous, smooth, scarlet, two-seeded, arranged in a cylindrical spike, six inches long, with the *rachis* slightly compressed, muricated as it were by the numerous tubercles to which the berries were attached. *W. J. H.*

Cult. Although not conspicuous as a showy flowering plant, yet the smooth leaves, general neat habit, and free growth of this species, make it worthy of cultivation. It is well adapted for training up rafters or on trellis-work. The plant from which the drawing was made is growing luxuriantly in light loam, and trained against the glass in the Palm-stove; it will also succeed in a warm green-house. It increases freely by cuttings placed under a bell-glass, and treated in the usual way. *J. S.*

Fig. 1. Anther seen from within. 2. Receptacle of stamens cut through vertically. 3. Receptacle entire:—*all more or less magnified.*

Tab. 4615.

IMPATIENS PULCHERRIMA.

Handsome-flowered Balsam.

Nat. Ord. Balsamineæ.—Pentandria Monogynia.

Gen. Char. Antheræ 5, nempe 3 biloculares, 2 ante petalum superius uniloculares. *Stamina* 5 coalita, valvis a basi ad apicem extrorsum revolutis. *Cotyledones* planiusculæ. *Pedunculi* axillares, ramosi, multiflori. *Capsulæ* glabræ.—Folia *alterna. De Cand.* .

Impatiens *pulcherrima*; caule erecto herbaceo glabro simplici vel ramoso, foliis alternis longiuscule petiolatis ovatis acuminatis crenato-serratis serraturis setigeris supra hispido-scabris subtus glaucis glaberrimis, pedunculis axillaribus binis v. ternis unifloris folio dimidio brevioribus, sepalis lateralibus minutis subulatis posteriore amplo orbiculari apice bifido dorso medio aculeato-cuspidato anteriore cucullato mucronato basi in calcar filiforme pedicello longius contracto, petalis fere ad basin divisis segmentis cuneato-obovatis apice bilobis segmento anteriore ampliore, fructu medio puberulo demum glabrato ovato-oblongo obtusissime rostrato 13–14-spermo, pedicellis fructiferis erectis apice cernuis. *Dalzell.*

Impatiens pulcherrima. *Dalzell, Contrib. to the Bot. of Western India, in Hook. Kew Gard. Misc. v. 2. p.* 37.

One of the finest of the Indian Balsams, of which, so numerous are the species, that however long is the specific character above given by our excellent friend Mr. Dalzell, it is perhaps necessary for the distinguishing a new species, till the whole genus shall have been elaborated and divided into sections, on clear and tangible distinctions.

Be that as it may, our figure will confirm the accuracy of Mr. Dalzell's specific character. That gentleman found the plant near Warree, in the Southern Concon, Bombay, and seeds were sent to us in 1850. The plants continued to bear flowers during most of the summer months. *W. J. H.*

Cult. Like the other tropical species of *Impatiens*, a succulent, tender annual. The seeds should be sown in spring, and if placed in a gentle heat they will soon vegetate. When the young plants are of sufficient strength, they must be potted singly in small pots, and duly shifted into larger ones as they increase in size, which they will do rapidly if supplied with

rich soil and plenty of water, and kept in a close pit or frame. A few may be planted in the open air in a sheltered place; but they are liable to suffer from too free an exposure to the winds and rain of this climate. Our plants have not perfected their seeds; and we fear that young plants from cuttings will be difficult to keep alive through the winter. *J. S.*

Tab. 4616.

FITZ-ROYA Patagonica.

Patagonian Fitz-Roya.

Nat. Ord. Coniferæ (§ Thuiopsideæ).—Monœcia Polyandria.

Gen. Char. Fitz-Roya, *Hook. fil.* Fl. Masc. ——? Fœm. *Amenta* solitaria, sessilia, globosa, ramulis brevibus terminalia. *Squamæ* 6 (3 aliæ abortivæ, terminales, minutæ, tuberculiformes), imbricatæ, in duas series insertæ, ovato-orbiculares, crassæ, coriaceæ, dorso supra medium spina brevi recurvata; 3 exteriores minores, magis patentes, steriles; interiores erectæ, ovuliferæ. *Ovula* 3 ad basin singulæ squamæ. *Fructus: Strobilus* amentum æmulans; *squamæ fructiferæ* trispermæ. *Semina* orbiculari-subbiloba, alato-compressa.—Arbor *semper-virens Patagonica, ramosissima.* Folia *decussata, quaterna, parva, oblonga vel ovata, acutiuscula, concava, dorso carinata, lineisque duabus depressis glaucis, decurrentia, juniora patentia, statu adulto erecto-patentia, imbricata, breviora.*

Fitz-Roya *Patagonica.*

Fitz-Roya Patagonica. *Hook. fil. in Herb. Hook. Lindl. in Paxton's Flower-Garden. v. 2. p.* 147. *n.* 387.

Specimens of this fine subantarctic tree, collected during the voyage of Capt. Robert Fitz-Roy, in H.M. surveying ship Beagle, were long ago examined and the fruit analyzed, and sketched, and named *Fitz-Roya* in compliment to that distinguished scientific officer. Nothing more seems to have been known of it till Mr. W. Lobb was sent by Messrs. Veitch and Son on his enterprising botanical mission in South America. There, on the Pacific side of Patagonia, this "magnificent" tree was met with in abundance. The seeds have been successfully reared; and although the plants are yet but small they bear female cones abundantly, and prove to be perfectly hardy; and Dr. Lindley very justly observes, that the "*Saxe-Gothæa conspicua, Fitz-Roya Patagonica, Libocedrus tetragona,* and *Podocarpus nubicola,*" all now flourishing in the open air in Mr. Veitch's Nursery, "are the four most interesting *Coniferæ* for this country, after *Araucaria imbricata,* which South America produces."

Descr. We are not able from personal knowledge to describe

the full-sized tree. The young, flourishing, fruit-bearing plants, from a foot to a foot and a half high, vary remarkably in appearance, the younger and even cone-bearing ones having the *leaves* very patent and lax, a second form having them moderately lax and patent, while a third form (and of this kind are the dried specimens sent home by Mr. Lobb) have the *leaves* almost erect, and closely imbricated, and shorter than the other kinds. In all cases the *leaves* are quaternate, decurrent, so as to give a furrowed character to the branchlets, oblong or ovate, dark green, concave above, keeled beneath, and on each side the keel or midrib having a pale glaucous depressed line, less conspicuous and shorter in the more imbricated variety. The *male flowers* we have not seen. The nature of the *cones*, or *strobili*, will be best understood by our figures.—The genus is most allied to *Thuiopsis* of Siebold and Zuccarini; but it has only six scales to the cone, three of them seed-bearing, and each scale including only three seeds. The foliage is extremely different from *Thuja* and *Thuiopsis*, uniform and spreading on all sides in *Fitz-Roya*. *W. J. H.*

Cult. The absence of any extensive breadth of land in the high latitudes of the southern hemisphere, readily accounts for the paucity of large trees sufficiently hardy to thrive in the open air of this country. Certain species of *Eucalyptus* and *Acacia* from Van Diemen's Land, and a few shrubs from New Zealand and Chili, endure our ordinary winters and continue to flourish for a time, the *Eucalypti* even showing fair prospect of becoming stately trees; but a winter more than commonly severe proves fatal to them. Even the *Araucaria imbricata* does not always sustain without injury the cold of some of our winters. But as *Fitz-Roya* is found much farther south than the *Araucaria* and ascends to the limit of perpetual snow, we may reasonably hope to find it bear with impunity the lowest degree of cold to which it will be subject in this climate. *J. S.*

Fig. 1. Branch of the usual appearance in the dried specimens sent home. 2. Leaves of the same. 3. Branch with leaves moderately patent. 4. Coniferous branch from Mr. Veitch's nursery. 5. Leaves of the same. 6. Strobilus, or cone. 7. The same, the three lower empty scales and one of the upper ones, and one of the three small terminal scales or tubercles, being removed. 8. A scale separated from the cone with its three seeds. 9. Seed. 10. The three small terminal tubercles:—*all but figures* 1, 2, 3, 4, *more or less magnified.*

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Tab. 4617.

ULLUCUS tuberosus.

Ulluco.

Nat. Ord. Basellaceæ.—Pentandria Monogynia.

Gen. Char. Flores membranacei. *Calyx* exterior apertus, inferne cum interiore longiore coalitus, bipartitus; laciniis æqualibus, aristatis v. setiferis. *Stamina* inclusa, inferne in urceolum subcarnosum calyci adnatum inter se coalita; *filamentorum* pars libera e basi calycis exserta, breviuscula, subulata, erecta; *antheræ* ovatæ. *Ovarium* subovatum. *Stylus* breviusculus, teres, apicem versus subincrassatus. *Stigma* superficies extrema styli. *Fructus* ovoideus, calycibus immutatis inferne involutus. *Pericarpium* baccatum. *Semen* verticale.—Herba *Peruviana*. Caules *carnosi*. Folia *alterna, petiolata, integerrima, carnosa, subnervosa*. Flores *pedicellati, in spicas simplices aut subramosas dispositi*. Spicæ *breves, paucifloræ, laxæ, angulatim flexuosæ*. Bracteæ *remotiusculæ, valde inæquales, inferiores basi pedicelli*: bractea inferior *magna, elongata, persistens*; superiores *apice pedicelli minutissimæ, cum fructibus deciduæ*. *Moq.*

Ullucus *tuberosus*.

Ullucus tuberosus. "*Lozano, in Senan. Nuov. Grenad.* 1809. *p.* 185." *De Cand. Prodr. v.* 3. *p.* 360. "*Moq. Bibl. Univ. Genev.* 1849."

Melloca tuberosa. *Lindl. Garden. Chron.* 1847. *p.* 685, *and* 1848. *p.* 828. *(fig.) and in Med. & Œcon. Bot. p.* 159. *f.* 229. *Moq. in De Cand. Prodr. v.* 13. *p.* 225.

Melloca Peruviana. *Moq. in De Cand. Prodr. v.* 13. *p.* 225.

Melloca tuberosa? *Moq. in De Cand. Prodr. v.* 13. *p.* 224.

Basella tuberosa. *H. B. K. Nov. Gen. et Sp. Am. v.* 2. *p.* 189.

The present plant is deserving of a figure in our Magazine, in part as a botanical curiosity, and in part as yielding tubers which are eaten in Peru, and which, in times of the potato-panic, have been introduced to Europe, with the vain hope of its proving a succedaneum for that invaluable esculent. During the prevalence of the famine occasioned by the failure of the Potato, various attempts were made to cultivate what might be considered a substitute for it, but altogether without success. Whatever the vegetable might be, either our climate was not suited to it, or the substance obtained from it was worthless, or not agreeable to the English palate:—none was found to answer. For a time the *Ulluco* claimed the public attention, by the introduction of its tubers, through Professor Jameson of Quito,

to the Horticultural Society of London, as recorded in the 'Gardeners' Chronicle' for 1847, p. 685. The plant is there rightly referred by Dr. Lindley to the *Basella tuberosa*, H. B. K., a "native of the cool regions of Popayan and Pasto;" but that able botanist, seeing at once the distinguishing characters, constituted of it anew genus, *Melloca*, the tubers being largely consumed by the Indian population under the name of "*Melloco*." It had, however, been previously described, as early as 1809, under the name of *Ullucus*. M. Louis Vilmorin gave a very interesting account of his attempts to cultivate this plant in France,* and he remarked a curious phenomenon, in the plant's throwing out thread-like branches, which run over the plants or on the ground, and enter the soil to develope themselves into tubers. The largest of our tubers are about the size of a hasel-nut, of a rich yellowish colour and firm waxy texture. Mr. Pentland describes this plant as cultivated throughout the elevated regions of the Andes of Peru and Bolivia (11,000–13,000 feet) under the name of "*Oca quina*." The tubers are chiefly used by the Indians in the preparation of "*Chuño*," by alternately freezing them and steeping, by which they are changed into an amylaceous substance.

Descr. *Root* fibrous, annual; but bearing, as does the Potato, numerous fleshy, yellow, firm *tubers*, varying in size from that of a pea to a good-sized hasel-nut. *Stems* prostrate, one to two feet long, procumbent, or ascending rather than scandent, and with a disposition to twine, moderately branched, glabrous, as is the whole plant: *stem* and *branches* rooting here and there, thick, succulent, watery, brittle, very angular, red, streaked with yellow. *Leaves* alternate on long petioles, cordate-reniform, acute, veined, entire, penninerved, somewhat fleshy, glossy: petioles longer than the leaves, thick, grooved, almost winged at the margin and there red. *Peduncles* about as long as the petiole, axillary, solitary, with a long setaceous bractea at the base, bearing flowers in a *raceme* from below the middle to the apex. *Pedicels* about a line long, red, subtended by subulate *bracteas* about their own length. *Floral bracteas* (outer calyx of Moquin) two, large, opposite, red, orbicular, membranaceous lobes, green in the lower half, which is united to the perianth. *Sepals* five, membranaceous, yellow, glossy, spreading, cordato-ovate, tapering into a long, subulate, flexuose tail. *Stamens* five, small, yellow; *filaments* very short, subulate, united at the base into a ring, which combines with the five sepals; *anthers* of two cup-shaped *cells*, each opening by a pore at the top. *Ovary* obovato-globose, green. *Style* short, green. *Stigma* obtuse. The *fruit* I have not seen. All our flowers prove abortive. *W. J. H.*

* See 'Gardeners' Chronicle,' 1848, p. 828.

Cult. A succulent, herbaceous plant, growing luxuriantly in the open air during the summer and autumn. Its singular flowers are small and make no show; it is, therefore, chiefly interesting to the botanist, or as a plant for the gardens of the curious. Being easily affected by frost, it is necessary to take up the tubers about the end of October, and keep them in store till April: they should then be planted in the open air. It requires no particular treatment, growing as freely in the shade as when fully exposed to the sun. *J. S.*

Fig. 1. Root with tubers:—*natural size.* 2. Flowers and bracteas on a portion of the raceme. 3. Stamen. 4. Pistil:—*magnified.*

Reeve & Nichols, imp

Tab. 4618.

CEDRONELLA cana.

Hoary-leaved Cedronella.

Nat. Ord. Labiatæ.—Didynamia Angiospermia.

Gen. Char. Calyx tubulosus v. campanulatus, ore subæquali v. obliquo 5-dentato. *Corolla* tubo exserto, intus nuda, fauce dilatata, *limbo* bilabiato, *labio* superiore recto subplano emarginato-bifido, inferiore trifido, *lobo* medio maximo. *Stamina* 4, adscendentia, didynama, inferioribus brevioribus; *antheræ* biloculares, *loculis* parallelis. *Stylus* apice subæqualiter bifidus, *lobis* subulatis apice stigmatiferis. *Nuculæ* siccæ, læves.—Herbæ *vel* frutices. Verticillastri *in* spica *v.* racemo *terminali approximati.*. Folia floralia *bracteæformia*. Bracteæ *parvæ setaceæ. Benth.*

Cedronella *cana*; erecta elata, foliis cordato- inferioribus subhastato-ovatis acutiusculis integerrimis vel grosse dentatis minutissime pubescenti-incanis, verticillastris multifloris in spicam longam multifloram approximatis, calyce tubuloso.

Mr. Bentham has long ago referred the *Gardoquia Mexicana* H. B. K. (G. betonicoides, *Lindl.*, and *Graham in Bot. Mag. t.* 3860), to the genus *Cedronella*. The two genera are, however, in different sections of the *Labiatæ*. From that species our present one, detected by Mr. Charles Wright in an expedition from Western Texas to El Pasco, New Mexico, and no. 474 of that gentleman's distributed collections, differs in the entirely glaucous stem and leaves, occasioned by a minute hoary pubescence, scarcely visible except in the recent plant, in the much smaller, more numerous, and shorter leaves, quite entire among and much below the whorls of flowers. Like that, however, the leaves abound in fragrant oil-dots. It flowers in the summer months, and makes a handsome appearance in the flower-border.

Descr. Two and a half to three feet high, much branched, especially at the base: *branches* opposite, square, hoary with very minute pubescence. *Leaves* small and entire, hoary in the upper part of the stem and near and about the flowers, and there numerous and approximate, ovate or ovato-lanceolate; lower

down larger, and cordato-ovate, or even approaching to hastate all rather obtuse, scarcely ever acuminated, and then but slightly so, more or less strongly dentato-serrate, the teeth never reaching to the point. *Whorls* of *flowers* in axillary racemes, shortly pedunculate, the flowers pointing upwards. *Calyx* tubular, with five narrow, almost subulate, or subulato-lanceolate, erect teeth. *Corolla* almost exactly as in the *C. Mexicana*, represented in Bot. Mag. t. 3860. *W. J. H.*

Cult. A hard-stemmed herbaceous plant, of suffruticose habit; the stems growing in a compact manner, and producing numerous spikes of showy flowers, which make it worthy of cultivation for the border. It appears to be quite hardy, and grows freely in common garden-soil. It may be increased by division of the roots, or by cuttings taken from the lower part of the stems. *J. S.*

Fig. 1. Ovary with the hypogynous disc :—*magnified*.

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Fitch, del et lith.

Reeve & Nichols imp.

Tab. 4619.

DENDROBIUM CUCUMERINUM.

Cucumber Dendrobium.

Nat. Ord. Orchideæ.—Gynandria Monandria.

Gen. Char. (*Vide supra*, Tab. 4352.)

Dendrobium *cucumerinum*; nanum intricatum cæspitosum, ramis brevissimis articulatis cylindraceis monophyllis, foliis oblongis teretibus seriatim tuberculatis, pedunculis brevissimis 3-(5-)floris, sepalis petalisque linearibus acuminatis obtusis, labelli trilobi lobis lateralibus triangularibus intermedio ovato crispato lamellis 5 (3) undulatis in medio, clinandrio denticulato. *Lindl.*

Dendrobium cucumerinum. *M'Leay, in Lindl. Bot. Reg.* 1842. *Misc.* 63. *Lindl. Bot. Reg.* 1843. *t.* 37.

Exactly as our specimen of this curious plant was, by the kindness of Capt. Philip King, R.N., received by us from Australia, we have represented it, growing from the same branch of a tree that it was imported upon in a good flowering state. The flowers, though large in proportion to the plant, are far from showy. The remarkable feature of the plant is the close resemblance the leaves (as Dr. Lindley is inclined to consider them) rather than pseudo-bulbs, bear to a collection of little tuberculated cucumbers or rather girkins; if they are pseudo-bulbs, then this plant bears no real leaves. That they are not pseudo-bulbs seems the more probable, from the fact that the peduncles do not spring from any portion of them. Our drawing was made in March 1851, in the Orchideous House of the Kew Gardens.

Descr. Epiphytal. *Stem* branched, creeping and running prostrate over the trunks or branches of trees, about as thick as a small goose-quill, flexuose, jointed, striated. *Roots* short, thick, white, wrinkled. *Leaves* oblong, terete, two inches long, obtuse at both ends, of a dark somewhat glaucous green, embossed with fleshy tubercles arranged in longitudinal lines. *Flowers* three to five, white or cream-colour, streaked with purple, borne in *racemes* which arise from articulations of the stem. *Peduncle* short, with very minute purple *bracteas*. *Sepals* and *petals* nearly

alike, linear, subsecund: *spur* very obtuse. *Lip* almost spathulate, acuminate, indistinctly three-lobed, lateral lobes incurved, middle lobe lobed and crenulated at the margin: the disc bears (in our plants) three membranous plates, which become lobed and undulated in the middle lobe of the labellum. *Column* short, toothed at the margin of the *clinandrium*. *Ovary* tubercled at the angles. *W. J. H.*

Cult. This singular plant is one of the few epiphytal Orchids that are natives of New Holland. They are chiefly found beyond the tropic on the eastern coast, in a climate where they often endure great drought, some growing on trees fully exposed to the sun. They are generally of a rigid, dry habit, and often do not thrive well under cultivation in this country. The present species is usually imported growing on the smaller branches of trees, to which it is firmly fixed by its roots. We find it thrive best in a house or pit that receives no artificial heat, except sufficient to keep out frost. *J. S.*

Fig. 1. Ovary, and column with its base decurrent to form the spur. 2. Labellum. 3. Pollen-masses:—*magnified*.

Tab. 4620.

KLUGIA Notoniana.

East Indian Klugia.

Nat. Ord. Cyrtandraceæ.—Didynamia Angiospermia.

Gen. Char. Calyx laxe tubulosus, basi inæqualis, nunc superne gibbus, pentaptero-pentagonus, 5-fidus, *lobis* æstivatione valvata, alis seu plicis tubi cum lobis alternantibus. *Corolla* personata, *tubo* subcylindrico, fauce clausa, labio superiore abbreviato bilobo, inferiore producto indiviso vel semitrilobo (ex *Schlecht.*) indiviso (*Br.*). *Stamina* corollæ tubo inserta, inclusa, 4 fertilia, didynama, absque rudimento quinti; *antheræ* biloculares, reniformes, in coronulam cohærentes. *Ovarium* disco annulari completo cinctum, uniloculare, *placentis* 2 parietalibus bilobis utrinque multiovulatis. *Stigma* depresso-capitatum, simplex. *Capsula* ovata, calyce inclusa, valvis 2 medio placentiferis. *Semina* 00, elliptico-oblonga, sulcata, transversim rugulosa.—Herbæ *annuæ, in Asia tropica et Mexico observatæ*, habitu, foliis *et* inflorescentia Rhynchoglossi, *a quo differunt solum antheris* 4. Folia *tenerrima, alterna, valde inæqualia, oblongo-ovata, acuminata, subintegra vel repando-denticulata*, pube *minuta subgrumosa subtus crebre punctulata.* Flores *racemosi, subsecundi, cærulei.*

Klugia *Notoniana*; caule carnosulo hinc linea dense villosa notato, foliis basi dimidiato-cordatis, calyce 5-angulato, angulo superiore prope basin cristato.

Klugia Notoniana. *De Cand. Prodr. v.* 9. *p.* 276. *Gard. in Calc. Journ. of Sc.—Wight, Ic. Plant. Ind. Or. v.* 4. *t.* 1353.

Wulfenia Notoniana. *Wall. Tent. Fl. Nepal. in MS. p.* 46. *Cat. n.* 409.

Glossanthus Notoniana. *Br. in Horsf. Fl. Jav. p.* 121. (*without descr.*)

Glossanthus Malabarica. *Klein, in Benth. Scroph. Ind. p.* 57. *Wall. Cat. n.* 6394.

Glossanthus Zeylanica. *Br. in Horsf. l. c.?* (*without descr.*)

The genus *Klugia* of Schlechtendal in 'Linnæa' (1833), the same with *Glossanthus* of Klein (1835) and of Brown, was founded on a Mexican plant; but a congener, if not congeners, are found in India: the present is one of them, remarkable for the great obliquity of the base of the leaf, and the brilliant colour of the blue flowers. Our living plants were received from Ceylon, through the kindness of our valued friend Mr. Thwaites, of the Botanic Gardens, Peradenia. Hence we suspect it may be the *Glossanthus Zeylanica* of Mr. Brown, l. c., without description. It is, however, certainly the *Wulfenia Notoniana* of Dr. Wallich,

and consequently *Glossanthus Notoniana* of Mr. Brown, and *Klugia Notoniana* of De Candolle, whose name we here adopt. It is abundant in the Neilgherry hills, and flowers in the stove in September.

Descr. Annual, herbaceous, succulent. Whole *plant* more or less hairy: on the stems the hairs are chiefly confined to a line on one side, most distinct in the ends of the branches. *Leaves* alternate, petiolated, entire or slightly serrated, semicordate, acuminate, very unequal at the base, strongly penninerved. *Racemes* opposite the leaves, many-flowered; the *flowers* secund and all pointing downwards, each *pedicel* bearing a small linear bractea. *Calyx* ovate, acuminate, five-cleft, five-angled, the angle more or less winged, upper angle generally most so and crested. *Corolla* large, very unequally bilabiate, rich, very deep blue, yellow near the base. *Upper lip* small, bidentate, *lower* broad and elliptical, entire, waved, with two cavities near the base, more than an inch long. *Stamens* four. *Ovary* immersed in a fleshy cup. *W. J. H.*

Cult. A soft-stemmed tropical plant, of low decumbent habit, and producing roots from the under side of the stem. It is at this time growing and flowering freely in a warm stove. A mixture of light loam and peat-soil suits it, and it appears to love moisture; it is, however, liable to suffer by an excess of moisture in the atmosphere of the house in the winter, and more particularly towards the spring, as by that time its powers have become exhausted and it is apt to damp off. *J. S.*

Fig. 1. Pistil and hypogynous cup. 2. Calyx:—*magnified*.

Fitch del et lith

Tab. 4621.

SAXIFRAGA FLAGELLARIS.

Spider-legged Saxifrage.

Nat. Ord. Saxifragaceæ.—Decandria Digynia.

Gen. Char. Calyx 5-sepalus, *sepalis* plus minus inter se et sæpe cum ovario coalitis. *Petala* 5, rariter irregularia, breviter unguiculata, integra. *Stamina* 10, 5 sepalis, 5 petalis opposita; *antheræ* biloculares. *Capsula* calyci adnata vel libera; *carpella* 2, sæpe usque ad stylum coalita. *Semina* numerosa, rugosa v. lævia, in pluribus seriebus disposita. *Spermodermium* ultra nucleum ovoideum non productum.—Herbæ *perennes v. annuæ, sæpissime valde polymorphæ in eadem specie.* Flores *sæpius paniculati, vel corymbosi, abortu solitarii. De Cand.*

Saxifraga *flagellaris*; flagellis filiformibus apice proliferis, caule erecto simplici 1–3-floro calycibusque glanduloso-pilosis, foliis radicalibus caulinisque obovato-spathulatis glanduloso-ciliatis, petalis persistentibus capsula fere omnino supera longioribus.

Saxifraga flagellaris. *Willd. ex Sternb. Rev. Sax. p.* 25. *t.* 6. *Br. Chlor. Melv. p.* 15. *Bieb. Fl. Taur. Cauc. Suppl. p.* 291. *Hook. Fl. Bor. Am. v.* 1. *p.* 253. *t.* 87. *Torrey and Gray, N. Am. Flora, v.* 2. *p.* 564.

Saxifraga aspera. *Bieb. Fl. Taur. Cauc. v.* 1. *p.* 314 (*excl. syn.*).

Saxifraga setigera. *Pursh, Am. Bor. v.* 1. *p.* 312.

Not one of the many expeditions that have gone out to discover a "north-west passage," or in search of the many brave and excellent officers and men of the Erebus and Terror whose fate is yet unknown to us, but has prosecuted researches in various branches of natural history—botany in particular. The flora of the Arctic regions, consequently, is as well known as that of any portion of civilized Europe. Living plants from those regions are always desiderata, for our climate, especially in the latitude and in the proximity of London, is very unsuited to their preservation, and they soon perish. A box filled with various growing plants, has been collected at Cornwallis Island, and sent to the Royal Gardens of Kew, by Capt. N. Penny, commanding the ship Albert, in conjunction with his very intelligent medical officer, Dr. Sutherland, and among them this curious and rare Saxifrage in a *flowering* state. It is drawn and lithographed and now published in little more than a month from its being landed in England, in October 1851. The present species of *Saxifraga* inhabits the Caucasian and Altaic Alps, as well as the Rocky Mountains of North America in about lat. 42°, to Melville

Island in the extreme north and Behring's Straits to the west. Closely allied species are found in the Himalaya. It has received the appropriate name of the Spider-plant from the sailors of our Arctic Expeditions.

Descr. From a perpendicular, somewhat fusiform and fibrous bearing *root*, there diverge in all directions a number of filiform slightly pubescent stolones, bearing gemmæ or young plants at the extremity, which send down radicles, and thus plant a colony of new individuals around the parent. From the centre or top of this root arises a solitary, erect, leafy *stem*, with crowded rosulate leaves at the base and more distant ones above. These are spathulate, spreading, the upper ones more oblong, all of them ciliated at the margin, the cilia glanduliferous. At the summit is sometimes a solitary *flower*; sometimes a cluster or umbel of from three to five. *Calyx* of five ciliated *sepals*, very much resembling the leaves in shape and texture, but smaller; equally glanduloso-ciliate. *Petals* obovate, yellow, five-nerved, shortly unguiculate. *Stamens* ten, shorter than the petals; *anthers* small, nearly globose. *Ovary* broad-ovate, almost entirely superior. *Stigmas* ciliated. *W. J. H.*

Cult. This diminutive plant will, we fear, like most Arctic plants, not last long in cultivation, owing to the impracticability of placing it under conditions of climate similar to those of its native countries. It there remains, for about ten months of the year, in a dormant state, buried under snow; on the melting of which it springs immediately into growth, and, being stimulated by the warmth and continuous light of the sun during the short Arctic summer, comes rapidly to maturity, producing flowers and multiplying by means of viviparous stolons. During this short period the soil is thawed to a depth of from eighteen inches to two feet, the earth below remaining in a frozen state throughout the year, showing that vegetable life in the Arctic regions is entirely dependent upon solar influence. Such being the circumstances amidst which this plant lives, it should be kept in a state of rest during winter, which, under the influence of our varying temperature, is difficult; for even if this and other Arctic plants are placed, in winter, in what we call a cool temperature, we still find them in a growing state, by which they become weak and soon exhaust themselves. *J. S.*

Fig. 1. Petal. 2. Leaf. 3. Calyx and pistil. 4. Single-flowered var.:—*all but f. 4 magnified.*

Fitch del et lith.

Reeve & Nichols imp.

Tab. 4622.

POLYGONUM VACCINIIFOLIUM.

Whortle-berried Knotweed.

Nat. Ord. Polygoneæ.—Octandria Trigynia.

Gen. Char. Flores hermaphroditi v. abortu polygami. *Perigonium* sæpissime coloratum, quinquefidum, rarius tri-quadrifidum, laciniis interdum inæqualibus demum plerumque auctum. *Stamina* 5 v. 8, perigonii laciniis singulatim v. interioribus etiam geminatim opposita, rarissime 4 v. 9; *filamenta* subulata; *antheræ* ovatæ, didymæ, versatiles. *Glandulæ* perigynæ v. rarius hypogynæ, staminibus alternæ, interdum nullæ. *Ovarium* uniloculare, compressum v. triquetrum; *ovulum* unicum, basilare, orthotropum. *Styli* bi-trifidi, interdum subnulli. *Stigmata* capitata. *Achenium* lenticulare v. triquetrum, perigonio inclusum. *Semen* achenio conforme, erectum. *Embryo* albuminis farinacei v. cornei angulum ambiens, antitropus, leviter arcuatus; *cotyledonibus* incumbentibus anguste linearibus, v. accumbentibus foliaceis latis, albuminis sulco receptis; *radicula* longiuscula supera.—Herbæ *cosmopolitæ, inter tropicos rariores, annuæ v. perennes, interdum suffrutescentes, nonnullæ aquaticæ, quædam volubiles*; foliis *alternis, petiolatis v. sessilibus, integerrimis v. sinuatis, interdum crispato-undulatis, nonnunquam pellucido-punctatis*, ochreis *membranaceis laxiusculis*, floribus *spicatis racemosis v. paniculatis, interdum subcapitatis*, bracteis *nunc ochreis conformibus, nunc infundibuliformi-turbinatis. Endl.*

Polygonum *vacciniifolium*; glaberrimum radicans fruticulosum ramosum decumbens, ramis copiosis erectis spiciferis, foliis approximatis ovatis in petiolum brevem attenuatis, racemis copiosis terminalibus lateribusque multifloris, sepalis 5 (intense roseis), stylis 3–4, ochreis setaceo-fissis.

Polygonum vacciniifolium. *Wall. Cat. n.* 1695. *Meisner in Wall. Pl. Asiat. Rar. v.* 3. *p.* 54. *Royle, Bot. Himal. p.* 317. *t.* 80. *f.* 2.

Apparently a common Himalayan plant. Dr. Wallich's collector, Blinkworth, first discovered it at Bhuddrinath (n. 1695 of the E. I. C.'s catalogue.) Major Madden found it extending from Buschur to Kumaoon, at elevations varying from 11,000 to 13,000 feet above the level of the sea; and Dr. Thomson as well as Dr. Hooker met with it both in Eastern and Western Himalaya. We owe its introduction to this country, where it proves perfectly hardy, to Dr. Royle, and we have since raised plants from Dr. Hooker's seeds; and certainly a bed filled with this easily-increased plant is as pretty an object as can well be imagined. The leaves are quite concealed by the copious spikes of bright rose-coloured flowers, which continue blooming from August till

November uninterruptedly. We are much mistaken if this will not become a great favourite in our gardens as a bedding-out plant, especially where autumn flowers are desirable.

Descr. *Roots* very woody, perennial, much divided and descending deep into the soil. *Stems* varying in length, from five to six inches to a foot-and-a-half, extensively branched, procumbent, rooting; the branches ascending and spicigerous. *Leaves* more or less approximate, generally much so, spreading, ovate, acute, glabrous, as is every part of the plant, tapering rather suddenly into a short *petiole*, dark green above, pale and almost glaucous beneath. *Ochreæ* sheathing, membranous, pale brown, striated, torn into long subulate laciniæ at the apex. *Spikes* or spiciform *racemes* two to three inches long, terminal and lateral, of numerous crowded, bright rose-coloured flowers. *Pedicels* short, sharply triangular. *Sepals* five, ovate, eventually spreading. *Stamens* eight to ten. *Styles* three. *Ovary* small, ovate, acutely trigonal. *W. J. H.*

Cult. This Himalayan plant has proved sufficiently hardy to bear the open air of this climate. It is a low-growing neat plant, and, by its numerous slender stems trailing along the ground and rooting at the joints, it soon forms a spreading compact patch. It is well adapted for the front part of rockwork, in situations where it will not be subject to drought in summer. *J. S.*

Fig. 1. Bud and flower:—*magnified.*